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Designing for Use: Marking Social Space in Complicated Urban Architecture at Imperial Ostia

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Designing for Use: Marking Social Space in Complicated Urban Architecture at Imperial Ostia

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by

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This dissertation explores the issue of architectural design in the ancient Roman port city of Ostia Antica. Working within a poststructuralist framework drawn from geography, sociology, architecture and urbanism, I propose the concept of the design-marker—an aspect of the built environment that reflects a designer's expectations for the way his building would be used.

Ostia is particularly well-suited to this study because of its complexity. As the complexity of the surrounding architectural environment increases, there are more types of social space—more potential environments and user groups—which the designer must take into account in his plans. It therefore becomes increasingly likely that discernible

patterns of design-markers will emerge. Ostia boasts acres of ancient architecture, and its blocks are both taller and more structurally complicated than those at Pompeii.

I identify two design-markers at Ostia: staircases and windows. When the relationship of all the staircases within a block are considered as a group, patterns in their deployment emerge. Designers at Ostia manipulate stairs' placement and their visual status (in view/out of view) according to the social value of the spaces they lead to. They also distinguish their entrances visually from other doorways. Although staircases have traditionally been classified as internal and external, my analysis proves that staircases exist along a much wider spectrum of possibilities.

Windows have not received much attention in scholarship. Windows affect interior experience by making a room susceptible to light, smell, and sound penetration from the exterior. Sometimes, as in the case of the well-decorated rooms of the House of the Muses, a window might be deployed specifically to put the interior on display. As that example shows, windows also exerted some influence on the experience of the building exterior. Similarly, loophole windows sacrifice interior lighting for the sake of the fortress-like connotations such windows project to the world outside. Ostian bars also oriented their windows in the most likely direction of traffic in order to entice new customers with the sounds and scents that escaped the tavern's interior.

Table of Contents

Chapter 1: Introduction 1
- Finding a way forward 5
- The Human-environment connection 11
- The space-Place distinction 14
- Cues and Place identification 19
- Place, cues, and architectural design 28
- Place and design in downtown Seattle 31
- Choosing a site 35
- A final note on design 38

Chapter 2: Ostia Site Survey 41
- The Triangle Block (III.xvi–xvii) 42
- The Case a Giardino (III.ix.1-24) 46
- The Baths of Neptune complex 56
- The Aurighi Building (III.x.1–3) 64
- Chapter summary 82

Chapter 3: Staircases as Design-Markers 83
- Fundamentals of staircase design and deployment 86
- Stair placement 88
- Visual status 109
- Chapter summary 119

Chapter 4: Windows and Other Visual Connections 123
- Visual access and visual connections 124
- Window construction and design 137
- Windows and interior space 144
- Windows and exterior experience 148
- Chapter Summary 155

Chapter 5: Remaining Issues and Conclusions 159
- Design-markers in the Aurighi Building 160
- Discussion of overall findings 172
- Impact on Roman urban studies 177
- Opportunities for future research 180
- Final thoughts 182

Figures 183

Bibliography 306

Chapter 1: Introduction

> *For all men, not just architects, are able to judge that something is good, but the difference between laymen and architects is this: the layman, unless he sees a thing finished, cannot know what it will be; but the architect keeps what it will be in his mind before he begins, and will have the outline of what it will be with respect to beauty, and function, and correctness.*
>
> –Vitruvius *De Architectura* 6.8.10

This dissertation investigates the practice of architectural design in Roman cities, using the Roman port city of Ostia Antica as a case site. I identify units of architecture, notably staircases and windows, which prove that Roman designers planned for different social uses of space in their structures. This evidence in turn allows us to draw broader conclusions about the social structure of Roman cities. In particular, I focus on the relationship between design and Roman behavioral norms. By turning our attention to normative, rather than actual, behavior, we can avoid the complications caused by the different relationships individual inhabitants might have had with their architectural environment.

Taken at face value, such a project treads well-worn territory in the field of Roman archaeology: the social use of architecture and architectural space. Indeed, already by the 18th century the drive to label the rooms uncovered at Pompeii reflects an attempt to understand what went on within them. The search for that understanding is one of the core missions of Roman archaeology, and has produced provocative, influential, and

valuable studies across the decades. In the past twenty years, however, advances in our understanding have forced us to acknowledge that Romans' social behavior was significantly more complicated than a function-for-room model suggests.[1] It has long been the trend to shy away from axiomatic statements about the "meaning" of a monumental space such as the Forum of Augustus, of course. But in the study of quotidian architecture, the habit has endured for quite some time. The fact of the matter is that it is no longer sufficient to identify a room as a *tablinum* and carry on with discussion, assuming that the label confers upon the reader a full knowledge of the space, from what kinds of activities went on there with what kinds of people, to the room's status as public or private, or even its owner's place in the social hierarchy. Careful study has proven conclusively that the way humans use space—the "meaning" they derive from it—depends on a wide variety of factors, including the time of day and year, the number and identity of the people present, and the quality and arrangement of the decoration (including furniture) within it.[2] Within the realm of Roman studies, Andrew Riggsby's analysis of the varying character of the *cubiculum* is one of the most-cited studies on this topic, but the concept has been explored in other contexts as well.[3]

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1. Riggsby 1997; Allison 1999; Dickmann 2010.
2. Goffman 1974; Rapoport 1982; Dovey 1999; Whyte 2000.
3. Riggsby 1997; D'Arms 1998; Donahue 2004; Dickmann 2010.

This socially contingent character of the built environment imposes interpretive hurdles that multiply when grappling with the urban landscape more broadly. A single city block might contain commercial, industrial, domestic, political, and ritual space, as well as spaces on multiple stories, and each likely plays host to a variety of activities. Moreover, each space within a block has a different set of users. That is to say, even if a block were comprised entirely of apartments, the group of people allowed to live in and to visit each apartment would be different. The manner in which these user groups interact within their respective apartments, and the value they attach to them, might be different as well. One of the tasks for the designer of such a block, then, is to ensure that each component space can be accessed and inhabited by its users while minimizing the chance that user groups might come into conflict with one another.

Analysis of complicated city blocks has begun to be explored in the Roman world,[4] but no one has yet increased the scope of that work to include the architectural and social contexts of a multi-block area. By expanding the analysis to encompass the entire area surrounding a block, it is possible to gain a more complete understanding of the realities of the social use of its architectural spaces while remaining anchored to a specific locale. Because such area-focused analyses have not yet emerged, a number of important

4. As noted by Stöger (2011, p. 260).

questions remain unaddressed. Given the contingent nature of Roman behavior in architectural space, how did Roman designers account for the complex arrangements of social space that a city block would inevitably contain? What measures did they take to facilitate users' navigation of and interaction with their structures? Which areas needed to be kept completely separate, and which could coexist with less clear boundaries? Did they also take into account the formal and social characteristics of neighboring buildings when designing their own? Is it even possible to provide compelling answers to these questions?

In this chapter, I will lay out a methodology and analytical framework which I believe can help to address these concerns. It is grounded in a wide body of interdisciplinary research on the importance of physical space and social structure in evaluating humans' behavior in their environment. The key to this framework is the notion of Place and its relationship to normative behavior. I will show how, through the normalized deployment of Place-cues, members of a given society can orient their behavior according to the context. In the course of that discussion, I will adduce a series of examples from Roman sources which showcase opinions on normative behavior within specific spatial and social contexts. Given the importance of cues, I argue that we can analyze the remains of architecture at Ostia for patterns in the deployment of spatial markers. These point

toward the assumptions and decisions the building's architect made as part of the design process.

Finding a way forward

Starting in the 1950s and 1960s, a trend spread across the humanities aimed at confronting the phenomenon of space and its influence on the other aspects of their respective fields. This "spatial turn," as it is commonly known, reflects the realization that humans carry out their lives within the confines of a physical world, a world which can affect our thoughts and behavior as we inhabit, interpret, and recreate it.[5] Geographers, anthropologists, sociologists, environmental psychologists, and urban and architectural historians have all proposed models to address the practical and theoretical difficulties inherent in conducting spatial analysis. One of the biggest hurdles to such an interdisciplinarity for archaeologists in particular, however, is the nature of the evidence. Most other fields operate in contexts that, unlike the ancient world, offer a superabundance of observable data. As a result, they often seek to answer different questions and construct models based on a degree of detail that is unavailable to archaeology. Nevertheless, the collective effort of scholars across these fields has

5. The following works are a small handful of those that address the idea of the spatial turn: Soja 1989; Hillier 1996; Lefebvre 2000; Soja 2001; Laurence 2007; Newsome 2008; Dovey 2010; Stöger 2011.

produced a number of theories and strategies valuable to the scholar of Roman urbanism. Adapting theories from other disciplines is not a new concept, of course—as any Marxist historian can attest—and Romanists have done so abundantly in recent times. Indeed, one such theoretical approach has dominated the dialogue on Roman urbanism for decades.

Space Syntax Theory (SST), first developed by urban historians Bill Hillier and Julienne Hanson and now a worldwide phenomenon, was applied to Pompeii by Ray Laurence and Mark Grahame in the 1990s.[6] A number of others have since followed Laurence in employing Space Syntax-influenced methods and tools, especially Access Analysis. The theory has drawn a number of criticisms, however, and Hillier's dogmatic insistence upon SST's universal explanatory power has been harshly tempered from within the Space Syntax community itself.[7] In particular, it has been shown that the approach shows significant weaknesses when applied to the incomplete data sets normally encountered by archaeologists.[8] It is not the goal of this dissertation to refute either the theory or methods presented by scholars of Space Syntax, however. As will be become clearer in my discussion of design-markers below, my approach is heavily indebted to Hillier and Hansen's ideas, especially concerning the importance of spatial relationships

6. Hillier and Hanson 1984; Grahame 2000; Laurence 2007. Stöger (2011, p. 45–50) discusses others.
7. Although Classicists do critique SSA, the wider literature on the topic is rarely acknowledged. See, e.g., Hillier and Penn 2004; Ratti 2004; Montello 2007; Hillier 2008.
8. DeLaine 2004; Taylor 2010; Newsome 2011: 5.

governing movement and access. Nevertheless, because SST has been such a popular approach in recent Classical scholarship, I feel it is necessary to discuss some of the reasons why I will not employ it in this project.

Although SST claims to eschew the social attributes of architectural space, it nonetheless depends wholly on the judgement of a socially situated interpreter.[9] Nor is adopting the whole body of SST a necessary precondition for taking a "space first" approach to analysis. Indeed, Classical archaeologists have employed such an approach for at least a century. Nowadays it is *de rigueur* for Roman archaeologists—to say nothing of Roman historians—to take stock of the available material evidence before arriving at their historically, culturally, or economically situated conclusions. Indeed, Hillier has in at least two publications held up Classical archaeology as an example of a field "doing things right," despite the fact that the research he cites employs none of the methods of Space Syntax.[10] Finally, although the tools provided by SST—notably, the creation of isovists, J-graphs, and agent-based movement modeling—are finely crafted to analyze complex spatial relationships, they are not sophisticated enough to make use of all the evidence available at Ostia linked to the social use of space.[11] As I will argue over the rest of this

9. Kent 1990: 150.
10. Especially Perring 1992, cited in Hillier 1996 and 2008.
11. Montello 2007.

chapter, the affective qualities of the built environment can have as much impact on the behavior of those who inhabit it as its formal or relational properties do. It is for this reason that David Newsome has recently called on Classicists not to consider SST-driven analysis a goal in its own right.[12]

Space Syntax is not the only approach to human-environment interaction developed in the wake of the spatial turn, however. It is not even the most prevalent. Far more popular have been the set of theories promoted by a body of geographers, sociologists, and urban historians of the past four decades which are affiliated with the poststructuralist movement.[13] The collection into a single category of so many writings from so many disciplines, each of which asks different questions, makes use of sometimes broadly differing vocabularies, and has its own history of development, is certainly artificial, but it is by no means arbitrary. While the works of, for instance, Anthony Giddens, Henri Lefebvre, Doreen Massey, Edward Soja, and Nigel Thrift differ significantly, they are united by a belief in the importance of space and its relationship to human activity. Just as has been the case with Space Syntax, adapting elements of their approaches can open the Roman evidence to new avenues for exploring the fundamental questions posed at the beginning of this chapter. It is important to note at the outset that I will not argue for the

12. Newsome 2011: 5. although cf. Stöger 2011: 260.
13. Soja 1989; Gregory 1993; Dovey 1999; Soja 2001; Cresswell 2004.

superiority of any one author or approach within the broad class of poststructuralist writing. Rather, I have identified a series of assumptions shared by all (or nearly all) poststructuralists. These assumptions, taken together, suggest an analytical framework which has the potential to further our understanding of Roman urban life.

If the poststructuralist approach offers such possibilities for new advances, one might rightly question why scholars of the ancient world have not already adopted it. The immediate answer is that they have, if only in a piecemeal fashion. Giddens and Bourdieu are no strangers to our field, to be sure. Classical scholars have also experimented with more technical concepts developed by geographers and urban historians, as in the recently-published proceedings of the 2008 Critical Roman Archaeology Conference at Stanford dedicated to the subject of Place.[14] The authors of these papers make a strong argument for the usefulness of Place and make extensive use of it in their analysis.[15] But with the exception of the introduction, they cite only a handful of the best-known works on the topic, and only from one or two disciplines.[16] Place, and other related phenomena such as the semiotic interpretation of architecture espoused by Eco and Barthes, have been heavily scrutinized, developed, and re-worked across the humanities since at least

14. Totten and Samuels 2012: 103.
15. For example, Totten and Samuels 2012: 11–12; van Dommelen 2012.
16. For instance, Feldman Weiss's article on Ephesus cites Casey, Ingold, and Tuan, but neglects important contributions by urbanists such as Dovey, Gehl, Massey, or Relph. The well known works of Lynch are curiously absent as well.

the 1970s. Indeed, the overwhelming bibliography is perhaps the largest hurdle facing more widespread adoption of poststructuralist theories in the study of Roman cities. On the subject of Place alone, the second edition of SAGE's *Key Thinkers on Space and Place* surveys the work of over sixty writers.[17] It would be nearly impossible to expect any student of Roman urbanism to become familiar with the scholarly output not only of his own field, but of four or five others as well. And while the usefulness of a poststructuralist approach to Place is evident even if one reads only Tuan and Ingold, casting a broader bibliographic net results in a more robust tool for analysis. This is more than a vain call for interdisciplinarity. If one of the main goals of contemporary Roman material studies is to improve our understanding of the daily functioning of Roman cities, as some have recently argued,[18] we would do well to leverage the collective work of so many minds over so many decades.

What follows, then, is my own attempt to provide an overview of the common assumptions and approaches taken by the poststructuralist scholars of urban space and social interaction. In each section below I will identify an assumption, discuss its consequences, and provide a representative bibliography in the notes. Because I have adapted these starting premises from scholarship of the modern world, and the question

17. Kitchin and Hubbard 2010.
18. Dickmann 2010; Laurence 2013.

of whether it is appropriate to retroject modern assumptions onto ancient populations is a valid one, I will also provide some examples from Roman culture in which I see the same phenomena at work.

The Human-environment connection

The most fundamental assumption which a poststructuralist approach must make regards the connection between humans' behavior and their surroundings. The precise manner in which space influences actions or decisions and the extent to which certain aspects of their surroundings are emphasized over others is highly contingent, to be sure. Nonetheless, the human-environment connection has been observed by scholars of so many fields in so many parts of the world across so many time periods that it is difficult to ignore its impact in a study of architectural space.

Indeed, it is not only social scientists who argue for the human-environment connection. Nearly 40 years of neuroscience research on the prefrontal cortex (PFC), the best-known section of the brain, confirms the influence of an individual's environment on his or her behavior. Within the PFC is an area dedicated to so-called "place cells," where the current state of an individual's environment is represented within the brain physically,

by means of a constantly updating network of neurons.[19] Apart from the inherent value in this representation has for facilitating the brain's estimation of movement speed and direction, the lattice structure created by place cells is directly connected to area of the brain responsible for the formation of memory.[20] Thus, memories are linked to sensory information from the environment, and are able to be recalled when faced with similar arrangements of space.[21] Put simply, our brains are structured to make use of sensory information to distinguish between different environments, allowing us to form precise memories of locations and experiences. These memories and experiences can then be recalled on the basis of changes in the sensory input.

Some have argued that naming this connection "human-environment interaction" establishes a false dichotomy which unfairly privileges humans by not considering their status as beings embedded in their surroundings. That is, they contend that humans constitute the environment as much as anything else does.[22] This argument is compelling and certainly deserves appropriate consideration. Any model of human-environment interaction cannot be treated as a simple stimulus-response scenario. But it is inappropriate to deny the evident link between physical space and social behavior for the

19. Moser 2008.
20. Ranganath 2010.
21. Ranganath 2010.
22. Ingold 2000: 186; Hillier 2008: 221.

sake of avoiding a potentially misleading dichotomy. By the same reasoning, we ought to be skeptical of assertions about the primacy of the "agency of space."[23] It is undeniable that our physical environment influences—and, importantly, constrains—where we can go, which in turn affects what we can do. But we cannot forget that people constructed many of the environments they inhabit. The spaces themselves, be they architectural or natural, do not exist separately from our conception of them.[24] In the end, then, neither human nor spatial agency is the prime determinant of human-environment interactions.[25] They are mutually influenced and influencing; just as our potential behavior is influenced by our environments, so too do we create, modify, and recreate spaces as we see fit.

That ancient Romans understood that human activity depends on the particular qualities of a given environment is well established. Textual evidence suggests that the mindset pervades Roman thought at all levels, from the national to the local. Vitruvius (*De Arch.* 6.1), for example, devotes the first chapter of his book on private buildings to discussing how the climate of different regions of Europe and the Mediterranean affects their inhabitants, and therefore also changes the needs their architecture must address. On a more individual level, Columella suggests in the *Res Rustica* that it is vital for farmers

23. Stöger 2011, introduction.
24. Ingold 2000: 186ff.
25. Soja (1989, p. 123) calls the idea that one is superior to another "an optical illusion."

to orient their behavior according to signals given in nature: for instance, according the color of the soil (Praef. 22), the amount and type of trees present (Praef. 24), or the precise quality of the nearest water sources (1.5).[26]

The space-Place distinction

By taking the human-environment connection as a given, we can say that people live out their lives not in generic space, but rather in specific locales which have specific value based on our experiences in them and in similar environments. To describe this phenomenon more succinctly, I will adopt a term popular in the field of geography: the value attachment process transforms generic space into a specific *Place*, distinguished as a technical term by the capital letter. Thousands of pages have been written on the multifaceted nature of Place, and I cannot encompass all of the ways in which is it deployed and defined. However, that breadth is perhaps its greatest strength as an analytical tool. At its most fundamental, a Place is a locale which, based on some set of criteria, a person treats as unique, either possessing a certain meaning, requiring a certain kind of behavior, or both.[27] A given Place is therefore tied to the attitudes or feelings of specific people living in a specific culture at a specific time, and at its most extreme can be

26. Cf. Virgil, *Georgics* 2.226-315.
27. Rapoport 1982: 15; Castello 2010: 2.

be confined to a single individual. At first glance, then, Place appears to reinforce the same basic problems proposed at the beginning of this chapter: that the variety of human activity within space is vast, and that Places can develop from very personal feelings and circumstances. Following that logic to its conclusion can result in a sort of nihilistic relativism, which might discourage making any compelling claims about experience of and activity within the built environment.

Social theory offers a way out of this difficulty. Of course, by referring to "social theory" as a single entity I have grossly simplified the history of research. The positions on social structure and human agency taken by, for example, Pierre Bourdieu, Anthony Giddens, Michel de Certeau, and Maurice Merleau-Ponty frequently diverge, and are often written in critical response to each other. Nevertheless, they all agree that however narrowly social structure is understood to operate within a given society, it exists, and further that it is reflected in the behaviors of its members. Building upon this position, influential writers such as David Canter and Edward Soja have shown that it is feasible to use social structure to develop Place into a tool for working around the problem of idiosyncracy in Place-meaning.[28] The argument runs as follows. Many kinds of social interaction occur repeatedly in the course of everyday life, and as a result they tend to

28. Canter 2000: 201-204.; Castello 2010: 108.; Certeau 1988: 97-98.; Soja 1989: 79-80.

become stereotyped and normative. Moreover, because those interactions necessarily occur in Places, we can treat kinds of Place as though they reflect the social and behavioral norms of a given society. So while it may never be possible to say for certain what a specific architectural environment meant to any given person in the Roman world, we can explore how different kinds of Place were treated collectively by those who inhabited them for insights into behavioral norms. Since there are very often more kinds of social interaction than there are discrete spaces in a given area, we can expect the same environment to be called on to express different normative cues at different times.[29] In other words, the same space can become a different Place, according to changes in circumstance: a different time of day or year, for instance, or the presence of a different group of people.

It ought to go without saying that understanding the importance of copresence, or the presence of multiple people in the same environment, is vital to studying the social use of space. If Places represent certain sets of behavioral norms, there will necessarily be some group who recognize that Place and understand those norms. I consider all such people to be the *users* of a Place. User groups can be very large—for instance, all Roman bathgoers—or very small, like two close friends. The size of the group does not change

29. Dovey, 2010: 16; Rapoport, 1982: 78. But cf. Leutgeb et al., 2005: 738.

the fundamental relationship between Places and users. Users are those people for whom it is appropriate to inhabit a Place and who are aware (or expected by others to be aware) of its rules for proper behavior. As I will argue below, the concepts of Place and user groups are a fruitful methodological development for interpreting architectural and design choices in large Roman cities.

One legitimate criticism of those who seek to reconstruct Place in ancient contexts is that it is an unwarranted modern imposition upon the Roman world—that the idea of Place comes out of post-Enlightenment and postpositivist social theory and therefore does not reflect the way Romans interacted with their environment at all. Yet there are a number of telling examples from ancient sources which suggest that Romans operated in a way analogous to what I have described. Consider the multivalent use of the *cubiculum* presented by Andrew Riggsby.[30] He describes various activities which might go on in that space, such as sex, rest, and receiving visitors. As any one of these activities goes on, there are different expectations for behavior. "Assigning a proper place to each behavior gives a way of evaluating any action and asserts the community's right to make that evaluation …."[31] Citing Anthony Giddens' discussion of "locales" (his terminological equivalent to Place), Riggsby further suggests that these expectations are in some sense marked by the

30. Riggsby 1997.
31. Riggsby 1997: 54.

physical qualities of the cubiculum at the time the activity takes place.[32] For instance, texts that discuss sleeping in the *cubiculum* at night suggest an absence of slaves; that is, they are not part of the assemblage of qualities that make up the Place associated with sleeping. At other times, however, slaves can serve almost as a piece of furniture, helping to establish the quality of the room.[33] The evidence for the Roman *cubiculum* shows that, under different conditions, the same physical environment is considered to have different access parameters and expectations for the kind of social interaction which would take place. In other words, as Places change, so too do their associated user groups. Riggsby's study also hints at the importance of certain elements within a given space for marking out different kinds of activity. This echoes the work of John Clarke and Andrew Wallace-Hadrill, who have convincingly shown that the quality and location of wall and floor decorations within a structure can suggest movement patterns and social identity of the owners or inhabitants.[34] Cues, however, go well beyond the decoration of the physical structure of a building and the status of a house's owner. Rather, Place cues were a fundamental aspect of all Roman social life.

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32. Riggsby 1997: 43.
33. Riggsby 1997: 44.
34. Clarke 1975; Wallace-Hadrill 1994.

Cues and Place identification

If we accept that many Places can occupy a single physical space under different conditions, then there must be a way for the people inhabiting a given space to distinguish Places from one other. Such cues would need to be unambiguous enough to ensure that those Places couldn't be easily misidentified. Based on his study of many different architectural milieux across the globe, Amos Rapoport has clearly demonstrated that just what constitutes a cue is culturally determined.[35] Each individual living in a given society must be inculcated into that society's approach to Place cues. For broadly implemented behavioral norms, this inculcation is likely to occur in childhood, but this learning can also happen at other times, such as during orientation at a new job, or by observing and emulating others' behavior.[36] Moreover, because people in different social positions often interact within the same Place, the same cues might suggest different kinds of behavior. At a Roman dinner party, for example, the host and guests may have had similar behavioral expectations, but the slaves serving the food or playing music had very different ones. Indeed, Andrew Wallace-Hadrill opens *Houses and Society in Pompeii and Herculaneum* with just such a discussion about the cues associated with dinner parties, as represented

35. Rapoport 1982: 115.
36. Lynch 1990: 427; Painter 2000: 242–243. In a Roman context, see O'Sullivan 2011.

by the well-known dinner scene in Petronius' *Satyricon*. He writes that, "The vistor to Trimalchio's house was confronted by a succession of signs, a mute but eloquent code."[37]

In short, it can be assumed that most people will regularly engage in social activity with others, frequently in scenarios where different people are expected to act differently. Under such circumstances, Place identification can serve as a means to maximize the likelihood of a successful encounter in which everyone acts appropriately. By learning what kinds of cues are important in a variety of contexts, members of that society will be better able to identify the Place in operation, and thereby predict both how others will act and how they themselves will be expected to behave. Since the same kinds of activity occur in the same kinds of Place—marked out by known, identifiable cues—Place allows people to orient their behavior and expectations based on past experience.[38] This avoids the time-consuming and error prone task of creating or intuiting a new set of parameters every time one enters a new environment. Place identification based on socially determined cues therefore minimizes the negative outcomes associated with being seen or thought to be behaving incorrectly.

Inappropriate or incongruent behavior introduces what I will call *Place conflict*. That it is considered to be negative and undesirable, or at the very least disruptive, is an

37. Wallace-Hadrill 1994: 1.

38. Goffman 1974: 39; Giddens 1984: 49; Duff 2010: 885.

important aspect of the Place framework.[39] Place conflict encompasses a wide body of potential outcomes. The most straightforward type is incorrect behavior. While many societies enact laws banning or punishing certain actions deemed especially bad, a great many other behavioral norms are enforced through lower-level social sanction. These sanctioned behaviors often stem from a misreading of cues, whether due to ignorance or calculation.[40]

Literary evidence suggests that Romans also treated Place conflict arising from incorrect behavior as a negative. Consider the case Cicero makes in his cross-examination of Caius Vatinius during the defense of Sestius. Over the course of the speech, Cicero paints Vatinius as an incompetent statesman not only on account of his political actions (notably, voting for Cicero's exile), but also by analogy from anecdotes regarding his behavior in Roman public life. One of Cicero's prime examples centers upon a high-status funeral celebration at the Temple of Castor in the Roman forum, an event to which Vatinius arrived inappropriately dressed in black. The passage highlights almost every aspect of Place, cues, and behavioral norms that I outlined above, and is therefore worth citing at some length:

And I wish also to know this from you: with what design or with what intention

39. Rapoport 1982: 80. In a Roman context, see Perring 1992: 295; Riggsby 1997: 42. On the idea that architecture can influence Place conflict, see Gehl 1987: 54; Hillier 1996: 187.

40. Rapoport 1982: 84; Giddens 1984: 71.

did you act when you reclined to dine in a black toga at the feast of Quintus Arrius, an intimate of mine? Whom have you ever seen do such a thing before? Of whom have you ever heard? What precedent did you have for such conduct, according to what custom did you act? […] Tell me, who ever went to a banquet in a mourning garment? **For by such conduct the feast itself and its purpose become funereal, even though these feasts are for *dignitas***. But I pass over the fact of its having been a banquet of the Roman people, a festival day **with silver plate, robes, and all sorts of furniture and ornaments in plain sight**. Who ever during a household's mourning, who at a funeral of a close relative, dined in a black toga? Who, except you, was ever given a black toga as he was leaving the baths? When so many thousands were reclining at the feast, when the master of the feast himself, Quintus Arrius, was dressed in white, you brought yourself into the temple of Castor like a mourner, along with Caius Fidulus and the rest of your Furies, dressed in black. Who there didn't receive you with groans, who didn't lament the downfall of the Republic? […] **Were you ignorant of the customary behavior?** Had you never seen a feast, never been among the cooks as a young man? Hadn't you recently sated that enduring hunger of yours at the lavish dinner of Faustus, a most noble-born young man? Whom had you seen recline (to dine) dressed in black? And when did you ever see a patron and his clients at a dinner in black togas? What insanity possessed you such that you should think that, unless you did what it was impious to do, **unless you insulted the temple of Castor, and the name of a feast, and the eyes of citizens, and the ancient custom,** and the man on whose authority you were invited, you would not have given sufficient proof that you did not think it was a proper rite?[41]

This fascinating passage sheds light on the way Romans dealt with changes in behavioral expectations (or at least, the way Cicero claims they were supposed to deal with them).

41. Cicero *In Vat.* 30-32. Translation by the author. Latin: *Atque etiam illud scire ex te cupio, quo consilio aut qua mente feceris ut in epulo Q. Arri, familiaris mei, cum toga pulla accumberes? Quem umquam videris, quem audieries? Quo exemplo, quo more feceris? [...] cedo quis umquam cenarit atratus? ita enim illud epulum est funebre ut munus sit funeris, epulae quidem ipsae dignitatis. Sed omitto epulum populi Romani, festum diem argento, veste, omni apparatu ornatuque visendo: quis umquam in luctu domestico, quis in funere familiari cenavit cum toga pulla? Cui dei balineis praeter te toga pulla umquam data est? Cum tot hominum milia accumberent, cum ipse epuli dominus, Q. Arrius, albatus esset, tu in templum Castoris te cum C. Fibulo atrato ceterisque tuis furiis funestum intulisti. quis tum non ingemuit, quis non doluit rei publicae casum? […] Hunc tu morem ignorabas? Numquam epulum videras? numquam puer aut adulescens inter cocos fueras? Fausti, adulescentis nobilissimi, paulo ex ante ex epulo magnificentissimo famem illam veterem tuam non expleras? Quem accumbere atratum videras? Dominum cum toga pulla et eius amicos ante convivium? Quae tanta te tenuit amentia ut, nisi id fecisses quod fast non fuit, nisi violasses templum Castoris, nomen epuli, oculos civium, morem eveterem, eius qui te invitarat auctoritatem, parum putares testificatum esse supplicationes te illas non putare?*

Vatinius is censured for his inappropriate behavior—in other words, for causing Place conflict. Cicero's indignant response suggests a kind of social framework which closely approximates the Place-centered (or Place-identification-centered) framework laid out above. Vatinius's inappropriate behavior is so offensive precisely because he can be believed to have had every opportunity to learn the correct behavioral customs, both from direct participation in previous feasts and through observation in his youth. Furthermore, the banquet presented an abundance of cues to mark out its presence: it occurred on a special day, its participants wore special robes and dined on silver plate while reclining on furniture which is not typically found at the Temple of Castor.

Notice also that Cicero does not just criticize Vatinius because his behavior does not match the appropriateness of the site of the Temple of Castor, but also (and especially) because it does not match the appropriateness of the activity. Those participating in the feast were not expected to behave as if they were at a meeting of the senate, or attending a sacrifice, two activities which the Temple of Castor might have regularly hosted. Instead, with a shift in circumstances—a certain time of day, a large number of diners reclining on couches, slaves wandering around serving food and drink—behavioral norms also changed. In fact, it is precisely the knowledge of the kinds of Place that normally inhabited the Temple of Castor that underscores Cicero's disgust. Romans therefore not only

operated within a framework predicated on Place, Place identification, and Place conflict, but they were capable of creating meta-narratives about the symbolic nature of those Places and their appropriate behaviors.

Place conflict can also occur when user groups are violated or otherwise come into contention. We can see a nice (if contrived) ancient example of this in Plato's *Symposium*. At the beginning of the work, the attendees establish their own guidelines for appropriate behavior at their drinking party, and although their parameters fall outside the norm for a drinking party, each participant agrees to act accordingly. Late in the work, the party is crashed by Alcibiades and a group of his companions, all of whom are unaware of the change in Place initiated by the original partygoers. As a result, there is tension between two user groups, each notionally associated with a Place called a symposium, but with radically divergent interpretations of the cues. We can also imagine a real-world scenario from Roman history. Every student will recall the story of Clodius, discovered wearing women's garb in an attempt to discover the secrets of the Bona Dea festival. Because of the outrage he caused—and because it was politically advantageous for his enemies—Clodius was tried for the crime of *incestum*. But I believe that we can go further and localize Clodius' transgression as specifically caused by Place conflict. After all, the significant issue at hand is the fact that Clodius, a man, did not belong to the appropriate

user group to participate in the rite. As W. Jeffrey Tatum puts it, "Because the Bona Dea admitted only women to her rites, Clodius's *delictum* consisted of simply being in Caesar's house on the night of the sacrifice. […] Indeed, sources report that the pandemonium broke out when his deep voice signalled his gender."[42] In other words, an environmental cue—his voice—is the signal that precipitated public discomfort at an instance of Place conflict.

Finally, Place conflict can arise through the encroachment of two different Places upon one another. In one of his literary epistles, Seneca describes an upsetting experience he had while renting a room along the Bay of Naples. He writes:

> Let me die if I think anything more requisite than silence for a man who secludes himself in order to study! Imagine what a variety of noises reverberates from all sides! I am staying right over a bathing establishment. So picture to yourself the assortment of sounds, which are strong enough to make me hate my very powers of hearing! When your strenuous gentleman, for example, is exercising himself by flourishing leaden weights; when he is working hard, or else pretends to be working hard, I can hear him grunt; and whenever he releases his imprisoned breath, I can hear him panting in wheezy and high-pitched tones…[43]

Seneca goes on at some length, describing the variety of annoying sounds robbing him of the silence necessary for his studies. Here he is upset in large part because the cues of his

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42. Tatum 1999: 65–66.

43. Seneca Ep. 56.1-2. Latin: *Peream si est tam necessarium quam videtur silentium in studia seposito. Ecce undique me varius clamor circumsonat: supra ipsum balneum habito. Propone nunc tibi omnia genera vocum quae in odium possunt aures adducere: cum fortiores exercentur et manus plumbo graves iactant, cum aut laborant aut laborantem imitantur, gemitus audio, quotiens retentum spiritum remiserunt, sibilos et acerbissimas respirationes...*

current Place—his room, in which he is currently working—are being overrun by cues which do not mark out a Place of private study, but are rather indicators of a bath environment which is below him. All of the sounds and activities he lists following the passage quotation above are perfectly appropriate for a bath environment. Seneca's problem, then, is the conflict between these Places. Or, perhaps more accurately, the cues he is experiencing and the Place he is expecting are at odds, and it is beyond his control to change.

A similar Place-conflict scenario is described in the preserved prologues to Terence's *Hecyra*. Evidently the play could not be performed on the occasion of its first commissioning because of competition over the use of the space set aside for it. The author of the prologue writes:

> I bring again to you the Hecyra, which I have never been able to put on in silence; for such a misfortune befell it: […] The first time I began to put it on, the acclaim of the gladiators, the expectation of a rope-dancer added to the mass of followers, the noise, the din of the women, made me make an exit before its due time. […] In the first act I pleased, when a rumor arrived that a gladiator show would be given. The masses flocked, tore up the place, shouted, and fought over seats. Meanwhile, I wasn't able to keep my place. But now there is no crowd; there is peace and quiet. I've been given the opportunity to put on a play, and you have the power to adorn the *ludi scaenici*.[44]

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44. Terence, *Hecyra* Prologue 29-45. Translation by the author. Latin: *Hecyram ad vos refero, quam mihi per silentium / numquam agere licitumst; ita eam oppressit calamitas. / [...] / quom primum eam agere coepi, pugilum gloria / funambuli <eo>dem accessit exspectatio, / comitum conventu', strepitu', clamor mulierum / fecere ut ante tempus exirem foras. / [...] / primo actu placeo; quom interea rumor venit / datum iri gladiatores, populu' convolat, / tumultuantur clamant, pugnant de loco: / ego interea meum non potui tutari locum. / nunc turba nulla est: otium et silentiumst: / agendi tempu' mihi datumst; vobis datur / potestas condecorandi ludos scaenicos.*

Here, too, a conflict occurred when two different Places—two different sets of behavioral expectations with two different (in this case wholly incongruent) sets of cues—try to occupy the same location at the same time. Notice also that the *prologus* attempts to ensure proper behavior by reminding the audience that they are, in fact, a part of the play itself. A quiet and attentive audience is a necessary cue in the creation of the Place associated with putting on a play.

To summarize, contemporary geography theory defines Places as discrete regions of the physical world which are associated with a socially determined body of behavioral norms. For the users who inhabit a Place, cues help to frame expectations and to orient proper behavior. A single location can host any number of Places, so long as the cues also change. When people do not act appropriately or when discordant cues are present at the same time, Place conflict can result. Most studies of contemporary populations have shown, however, that the most important cues are precisely those which are least visible in the archaeological record: for instance, the position and behavior of people, or the arrangement, quality, and decoration of furniture.[45] The ancient sources cited above suggest that this is also true in the Roman world. Understandably, this fact poses a serious problem for anyone wishing to study human-environment interaction in the ancient world.

45. Rapoport 1982; Sanders 1990.

Literary sources are helpful, but they cannot tell us about a broad variety of real-life contexts in the same way that archaeological evidence can. The absence of surviving furniture, people, and clothing means that it will be very difficult to get a complete picture of Roman placemaking. But the environment does not just influence users; it is also created by them. Architecture may not influence Place with the same nuance that more temporary objects do, but it does exert some influence. It also often happens to be the best-preserved part of an ancient city.

Place, cues, and architectural design

One corollary of the influence of architecture upon its users is its equally strong influence upon architects and designers. Architects are of course themselves users of Places, but they are also influenced by Place—that is, influenced by the knowledge of cues, norms and expectations they carry with them—in their capacity as designers. To be sure, designers operating at the scale of the city block cannot control every potential Place outcome in their structures. Too much of what differentiates Places operates at a more ephemeral level than the architectural. But there are some aspects of Place that depend on architecture—for instance, the placement and form of dwelling entrances.[46] Moreover,

46. Whyte 1988: 174; Hillier 1996: 187; Clarke 2013: 356.

builders can have an even larger impact upon the likelihood of Place conflict. To minimize the chance for Place conflict, Roman designers must have been more or less aware of the different kinds of Place that might be present at any given time in the finished product. In order to create a well-functioning city block, they needed to make predictions about how different Places might interact with each other, and how various user groups might access those Places. Echoing the Vitruvius passage cited at the beginning of this chapter, they had to make use of their own past experiences and expert knowledge in order to visualize the finished structure and, on the basis of that visualization, decide how to arrange and design the various social spaces that constituted it.[47] In other words, designers have always drawn upon their latent awareness of social structure in the course of conducting their work.

The notion that people have at least a low-level awareness of the type of broadly observed social norms which constitute social structure is nearly unanimously agreed upon in the social sciences, even if different authors describe it in different terms. Pierre Bourdieu famously labeled the process of acting upon learned, normative behavior "habitus,"[48] but others have employed similar ideas in different terms. Anthony Giddens

47. Bacon 1976: 20; Tonkiss 2014: 2–6. Ingold (2011, p. 186) says that the ability to predict is unique to humans, and therefore at the core of our daily life. Columella (*Res R.* 1.4.4) suggests a similar process for judging proper actions to take while farming.

48. Bourdieu 1977: 76@21–22.

calls norms "rules" and individuals' awareness of them "practical knowledge,"[49] while William Sewell calls norms "schemas."[50] Erving Goffman describes a scenario in which people behave within "frameworks" and possess the power of "frame projection."[51] These ontologies vary somewhat in their particulars (see Sewell 1992 for an introduction to their differences), but they are united in their belief in a social structure that is accessible by individuals within a society. Given the assumption that Place conflict is to be avoided, designers are therefore encouraged to design structures where the likelihood of conflict is minimized; we ought to imagine that Roman designers were similarly influenced. I argue that, over time, designers developed a repertoire of strategies for managing complex Place-user interaction in large city blocks, and that these strategies are manifest in the repeated appearance of certain kinds of structures and arrangements. Thus, while it is very difficult to say anything definite about the specific use of a single room, or the experience of an individual within a given space, there is a much greater potential to identify the influence of social structure on designers.

Broadly speaking, I identify two classes of spatial marker: those attributes of the built environment which could have acted as cues to aid users in Place identification

49. Giddens 1984: 21–22.
50. Sewell Jr 1992: 13.
51. Goffman 1974: 39.

(hereafter *use-markers*); and those architectural units that designers could deploy or manipulate to further their goal of minimizing Place conflict (*design-markers*). And because architecture is better preserved in the archaeological record, I will focus on design-markers in this dissertation. Some design-markers are readily apparent and can be studied from a plan, such as doors, corridors, and stairways. The deployment of some others—windows, viewsheds, or ceiling heights, for example—are more complicated in their effect and will benefit from a three-dimensional approach. For an example of use- and design-markers in action, I turn to a modern example from Seattle.

Place and design in downtown Seattle

In 1998 the city of Seattle issued a call for design proposals for a complete renovation of its Central Public Library (CPL). The commission went to Dutch architect Rem Koolhaas and his firm OMA, and in 2004 the new library opened to the public.[52] Koolhaas' design aesthetic is predicated in large part on a return to the early modernist goal of transforming urban areas into "everyday cities."[53] In practice, Koolhaas achieves this paradigm by avoiding vernacular building conventions in favor of constructing large, open spaces in which various sections are designated for different activities. The Seattle

52. Carlson *et al.* 2010: 284.
53. Tonkiss 2014: 8–10.

CPL is an excellent example of this phenomenon. The third-floor "Mixing Chamber" consists of a single space with different sections given over to a café, computers, help desk, and reading room.[54] As OMA writes in its description of the CPL, "The library's various programs are intuitively arranged across five platforms and four flowing 'in between' planes, […] offering the city an inspiring building that is robust in both its elegance and its logic."[55] In the 10 years since its inception, the building has enjoyed critical acclaim, being named *Time Magazine*'s outstanding building of 2004 and listed on the AIA's list of favorite American buildings in 2007.[56]

For all its critical success, however, the building has received negative remarks from its users and the lay press. Articles in both the *New York Times* and the *Seattle Post-Intelligencer* quote respondents who report feeling overwhelmed by the task of wayfinding as their primary association with the building. An environmental psychology study on wayfinding analyzed the building and confirmed the difficulty users have with navigating the building's various floors and spaces.[57] One of the main reasons for the difficulty seems to be that in order to create his desired effect, Koolhaas placed elevators and stairways out

54. "Seattle Central Library," *OMA*, http://oma.eu/projects/seattle-central-library (Accessed May 7th, 2016).
55. "Seattle Central Library," *OMA*, http://oma.eu/projects/seattle-central-library (Accessed May 7th, 2016).
56. Carlson *et al.* 2010: 284.
57. Carlson *et al.* 2010: 284.

of sight, instead privileging a helical ramp to move through the library stacks. So, while there is an abundance of cues marking out the space in the CPL as a library—stacks of books, rows of computers, reference desks, not to mention signs—the more fundamental cues about how to navigate the space are either absent or insufficiently visible. As a result, new users cannot make use of their previous experience to help with moving through a ramp-based library. Thus, they cannot easily anticipate floor changes or know how to find a desired location from a starting position at the entrance.

The problems reported at the Seattle CPL highlight the difference between use-markers and design-markers. The building displays a satisfactory number of use-markers, although many of these are less permanent than the walls, columns, windows, and floors of the building's architectural skeleton. Instead, issues arise at the architectural level—that is, with design-markers. Staircases are a prevalent and widely-diffused design-marker with which most users are both familiar and comfortable; spiraling ramps much less so. Each achieves the same goal of permitting users to move between different floors of a multistory building, but the contrast in users' ability to predict the effects of each is stark. The important lesson to take away from the new Seattle Central Public Library is that there are elements of the built environment which affect the arrangement of space and the way people use it but are not part of the active group of cues relevant to the Place a user

currently inhabits. These are design-markers, evidence of the architect's attempts to influence the Placemaking process as part of his work as a building designer.

The relationship between design- and use-markers is therefore complicated and determined by the time, people, and Place in question. The two categories may overlap significantly; architectural elements can be designated as important signals as much as other elements of the environment can. The primary difference between use-markers and design-markers is a question of breadth and control. Use-markers are a broad category which include elements that exist in a wide variety of time-scales. Amos Rapoport, for example, divides cues into fixed elements (such as doors, windows, walls, etc), semifixed elements (furniture, lighting), and nonfixed elements (people, their clothing, and their gestures).[58] Thus, use-markers include elements of the built environment which are entirely in the control of users. Design-markers, on the other hand, are those things which are only manipulable through building and rebuilding. Doorways and walls can always be added or removed from a building, and this can tell us something about the changes in intended use of a space. But it is with the original construction of a building that we can best see the influence of social norms operating upon a designer or design team working in tandem.

58. Rapoport 1982.

Since the ancient world rarely preserves public statements by an architect on his vision for a building, design-markers are one of the few options for investigating the perspective of Roman designers on the norms of social use of architectural space in Roman cities. Let us therefore turn to the setting of this dissertation: Roman Ostia.

Choosing a site

In order to increase the likelihood that we will be able to see patterns in architectural design in the extant archaeological record, we should look for particularly complicated arrangements of space. As the complexity of the surrounding architectural environment increases, there are more types of social space—more potential kinds of Place and user groups—which the designer must take into account in his plans. It therefore becomes increasingly likely that discernible patterns of design-markers will emerge. With respect to such complexity, the ancient port city of Ostia is an ideal candidate for study. Rome itself does not qualify because the modern city has engulfed the ancient, and there is a dearth of readily accessible, well-preserved city blocks available for analysis. Ostia, on the other hand, boasts acres of ancient architecture, and its blocks are both taller and more structurally complicated than those at Pompeii. Because of the nature of the "building boom" at Ostia in the second century, a great many of its buildings can be dated to roughly

the same time, meaning that the added complication of potential diachronic shifts in normative behavior is minimized (but certainly not entirely removed). Scholarship on Ostia is vibrant and has a history of both close architectural analysis and macroscopic studies on the social aspects of urbanism which are at the heart of this project.

Finally, it is the city which lies closest to Rome, both geographically and politically. When dealing with architecture, my method will always involve first a close analysis of the physical remains. As is nearly always the case, however, any appeal to the social life of the Classical world will inevitably involve reference to textual sources. By choosing a site close to Rome, I hope to minimize the problems which inevitably would arise by comparing the opinions of Roman authors writing in the capital against the architecture of other well-preserved Roman-era cities such as Timgad or Ephesus.

Although I will draw evidence from buildings throughout the city, I have identified four different blocks at Ostia that can offer insight into the utility of design-markers in Roman urban development: the Baths of Neptune complex (*insulae* II.iv-vi); the Case a Giardino (III.ix); the III.x block, consisting of the Caseggiati degli Aurighi and del Serapide, and the Terme dei Sette Sapienti (III.x.1–3); and what I will call the Triangle Block, the building that housed Ostia's *Serapeum* (III.xvi–xvii). I will describe the architecture of each in detail in Chapter Two, but I would like to speak generally about

why I have selected them. I have singled out these building complexes for three main reasons: first, they are all more or less contemporary structures, each having been finished in the middle of the second century CE; second, they are relatively well-preserved and enjoy a history of publication; finally, each presents a different set of characteristics for analysis. The Case a Giardino, for example, are a mixed commercial/residential complex with abundant evidence of careful design. The Baths of Neptune complex, on the other hand, was an imperially funded and municipally owned complex including one of the most clearly public spaces—a monumental bath-*palaestra* complex—and one of the most clearly private, the barracks of Ostia's firefighting guild. The Triangle Block represents a mixed-use complex with an important religious building that, on its face, does not seem to have been designed to take into account the surrounding city blocks in any way. Finally, the commercial complex in the northwest part of the forum is dominated by only two kinds of social space—warehouses and smaller shops—and should therefore provide some insight into how (if at all) design-markers were used to distinguish between the same kinds of social space.

In short, each of the building complexes selected for this study were chosen because they offer up a cross-section of most of the urban architecture available at Ostia, while remaining within a relatively limited chronological range.

A final note on design

At its heart, this dissertation is preoccupied with concept of architectural design. The word will appear frequently in this text as both a noun (create a *design*), an activity (*design* a corridor), and as a profession (the *designer* of a building), and as such the precise limits of its meaning will weigh heavily on my conclusions. I would therefore like to lay out more clearly what I mean when I use the word.

In the modern world, when an object is labeled "designed," be it a building, a painting, a desk, or a toothbrush, the appellation carries with it centuries of intellectual baggage. The word is often used in modern advertising to denote quality and exclusivity (and to justify a high price). Even within the professional world of architecture and civil engineering, the word is deployed across widely differing contexts, suggesting stark differences in underlying meanings and worldviews. Roger Scruton, for example, equates all acts of building with design, writing that architecture "exists first and foremost as a process of arrangement in which every normal man may participate."[59] Conversely, Bill Hillier draws a stark distinction between what he terms "architecture" and "vernacular building," with the former involving a conscious execution of the sorts of culturally determined techniques and approaches which make up all building acts. "Whereas in the

59. Scruton 1979: 16ff.

vernacular the non-discursive aspects of architecture are normative and handled autonomically," he writes, "in architecture these contents become the object of reflective and creative thought. The designer is in effect a configurational thinker."[60]

In this dissertation, I take a very broad interpretation of the concept of design, much more aligned with Scruton than with Hillier. I will consider design to encompass any kind of planning for a building project. Planning can include the actual laying out of walls and floors, either in a model or in real space, according to defined precepts about best practices—essentially in line with Hillier's "architecture"—but it can also include less discursive, more culturally determined decisions about space, such as where to put bedrooms with respect to kitchens, how big they should be in relation to the more communal rooms within a household, and even what colors to paint their walls. In short, I consider all (or nearly all) Roman building projects that are archaeologically visible to be the result of design. Put another way, all of these projects are the result of choices made by an individual or group in charge of construction. For this reason I will use the word "designer" as a catch-all term to describe anyone—architect, contractor, skilled laborer, or property owner—who made the ultimate decisions about the formal results of any

60. Hillier 1996, 33.

building act. Necessarily, then, these decision-makers were influenced by socio-cultural factors as well as received wisdom about architectural technique.

As we will see in the chapters to follow, some blocks exhibit far more evidence of having been rigorously planned in the narrower "architecture" sense than others. In some cases, it seems that a single individual or small group tightly controlled both the superficial and structural aspects of a building project according to aesthetic, social, or cultural values. Other projects will be aligned more closely with Hillier's concept of vernacular building. I consider these latter cases to be no less designed; they are still the result of designers (conceived in the broad sense laid out above) who undertook some amount of planning (also conceived broadly) in advance of the building's completion.

Chapter 2: Ostia Site Survey

Although I will refer to more than a dozen different buildings at Ostia throughout the dissertation, many of them are relatively self-contained. Four of them, however, are larger building complexes: the III.xvi–xvii block, the Garden Houses, the III.x block, and the Baths of Neptune complex. Each comprises a number of structures arranged within a large area, and as such requires a reader to be familiar with the overall layout and major issues in order to understand the more nuanced arguments about design-markers I will make in the chapters that follow. And moreover, since the premise of this dissertation is that design-markers reflect decisions about how buildings would be used, the precise architectural context that existed at the time of initial construction is important.

In order to avoid spreading their description out over the entire text of the dissertation, then, I will dedicate the following pages to an introduction to each complex. My goal here is not to assess their design, but rather to describe their form at the time of initial construction, to lay out their excavation history, and, where pertinent, to summarize trends in scholarly interpretation. In some cases, like the Garden Houses, the form of the building is straightforward and unambiguous. But in others, and especially in the Caseggiato degli Aurighi, no adequate plan of the original phases of construction exists, and so I will have to spend some time presenting my own interpretation of the

building as it was originally built. Without further preamble, I turn to the first of these case sites: the Triangle Block.

The Triangle Block (III.xvi–xvii)

On the western edge of Ostia, abutted by the massive walls of the Severan *horrea* peeking through the earth in that part of the city, sits a a set of structures arranged in a roughly triangular shape spanning the distance between the Via della Foce and the Cardo degli Aurighi. This "extraordinarily interesting group of buildings,"as Marion Blake describes them, comprises some of the most significant architectural finds from the 1938–42 excavations, including the Baths of the Trinacria (III.xvi.7), the Serapeum and its associated *collegium* (III.xvii.3–4), the House of Bacchus and Ariadne (III.xvii.5), and a handful of shops and storehouses organized around an internal street, the Via del Serapide (Fig. 1).[61]

Thanks to the Herbert Bloch's lifetime of dedication to dating the brickstamps found at Ostia, and to epigraphic attestation of the Serapeum, we know the chronology of the block's development with surprising precision.[62] Beginning in the Hadrianic period a significant ground-raising operation was undertaken in the area, obliterating the earlier

61. Blake and Bishop 1973: 185.
62. Bloch 1947; Bloch 1959.

Republican-era structures and clearing the ground for the structures of the Triangle Block. After that came the trapezoidal warehouse on the southern end, whose façade along the Cardo degli Aurighi was monumentalized with a raised podium and engaged brickwork pilasters (complete with inset travertine blocks) (Fig. 2). Although this building would later have its back wall opened up to allow passage to the Via del Serapide, originally this building only communicated with the Cardo degli Aurighi. This reflects a trend that I will investigate in greater detail in the section on the III.x block below: the buildings in Region III in the first half of the 2nd century CE are oriented more towards the Cardo degli Aurighi, while by 200 many are modified to reorient toward the northern Via della Foce. This warehouse, identified as a luxury goods storage facility because of its small size and high-quality brick construction, has no visible brickstamps, and therefore was likely built before the large-scale reorganization of the brick industry under Hadrian.[63]

Construction of the temple to Serapis can be dated precisely to the years 123–127, and this building is considered the linchpin for the entire Hadrianic brickstamp chronology.[64] The *Fasti Ostienses* mention a temple to Serapis dedicated on Hadrian's birthday in the year 127, and the structure in this Block—where Calza discovered a broken inscription reading IOVI SERAPI reused in the floor (Fig. 3)—is now widely believed to

63. Blake and Bishop 1973: 185.
64. Bloch 1959.

be that temple.[65] The buildings on either side of the temple were connected to it via doorways, and are therefore considered connected to the worship of Serapis.[66]

As for the colonnaded area in between the warehouse at the far southern end of the block and the buildings of the Serapeum, the structure has a formal mirror in the Loggia of Cartilius Poplicola near the Porta Marina (IV.ix.1, Fig. 4), but we can say little about its original function. It was almost certainly built with the Serapeum buildings in the 123–127 time frame, but by the turn of the century it was blocked up for the installation of a *mithraeum*, the so-called Mitero della Planta Pedis.[67]

The east side of the Via del Serapide was largely occupied by the Terme della Trinacria (III.xvi.7), a bath building whose masonry points to its being roughly contemporaneous with the Baths of Mithras across the Via della Foce. Here too, the preponderance of brickstamps from 123–6 put construction right around 127. It had three entrances: a long corridor opening onto the Via della Foce; a vestibule stretching east to the Via Nord delle Casette-Tipo; and a wide archway facing the Via del Serapide itself (Fig. 5). In the 120s the Baths of the Seven Sages had not yet been constructed, which meant that these were the only baths serving the area between the Terme del Mitra and

65. Mols 2007: 229.
66. Blake and Bishop 1973: 188.
67. According to Becatti in the second volume of the *Scavi di Ostia*, it was most likely built in the period around 180.

the Terme Marittime to the south. It seems that the original furnaces became insufficient, as one of its cisterns was later reconfigured to become an additional heating element. Then, in the reign of Commodus, the bath's *suspensurae* and heated rooms were refurbished.[68]

As I will discuss later in Chapter Four, the block is organized differently than many others in Region III. While other city blocks in the area have multiple access points to the street network, the Triangle Block is largely accessible only from the Via della Foce. And all of its buildings are oriented inward, with façades only along the Via del Serapide. This sort of inward focus, along with the presence of the temple to Serapis, prompted Guido Calza to label the block as part of an "oriental quarter," a sort of enclave of eastern Mediterranean culture in the port city. Stephan Mols has conclusively shown that this is an overreaching interpretation of the evidence, but it has been repeated extensively in literature across the 20th century.[69] Regardless, what is important for the purpose of my study is that the overall structure of the complex presents a stark contrast to many of the other blocks in Region III. While the Triangle Block is more focused on the interior Via del Serapide, the block I turn to next is more connected with the street network around it.

68. Blake and Bishop 1973: 186–187.
69. Mols 2007: 229–230.

The Case a Giardino (III.ix.1-24)

In many ways, the mixed-use structure in the southwest corner of Region III known as the Case a Giardino ("Garden Houses," hereafter also simply Case) represents an ideal test case for an investigation of Roman architectural design: first, it is a sprawling complex of well-preserved buildings that constitutes the largest privately funded architectural project in the known extent of the city; second, although small soundings have identified earlier structures in the area, the site appears to have been completely cleared in anticipation of construction;[70] third, it features a number of different kinds of social space, including residences and shops of varying size and quality, as well as an open courtyard; and finally, scrupulous formal analysis has shown that the complex was organized according to not only a numerical module (the *actus*), but also a distinct aesthetic program.[71] In short, the Case a Giardino give every indication of having been *designed* in the modern sense of that term.

The complex sits at the western edge of the archaeological park, just south of the Cardo degli Aurighi, one of the two main east-west thoroughfares in the western half of the city (Fig. 6). Most of the complex was excavated at the height of the clearing frenzy in 1939–40, and was inconsistently documented as a result. The area has enjoyed

70. Cervi 1998.
71. DeLaine 2004: 154.

considerable attention in the intervening decades, however: a smaller exploration and reconstruction project in the 1960s, along with thorough analysis of the decorative programs in the Insula delle Muse and the Casa delle Ierodule, have more or less confirmed the original excavators' interpretation of the building as a residential–commercial complex of the Hadrianic era intended for the wealthier citizens of Ostia.

For the sake of clarity, I have divided the plan of the complex into four sections: the two multistory apartment buildings at the center (hereafter the *central apartments*), the open area surrounding them (the *courtyard*), the shops and residences that form the courtyard's outer boundary (the *outer ring*), and the row of shops lying between the Cardo degli Aurighi and the north wall of the outer ring (the *streetfront shops*). These streetfront shops are the only part of the complex that come into contact with prior construction. According to Bloch's brickstamp analysis, the eastern two units of the streetfront shops (III.ix.23–24) were built at the same time as the rest of the Case, while the two western units (III.ix.25–26) date to the very end of the first century CE.[72] By incorporating these shops into the later design, the complex thus established a secondary passageway parallel to the Cardo that is sometimes called a "private street." Although that name is problematic—not only because the adjective *private* is troublesome, but also because it

72. Cervi 1998: 144.

does not match the physical characteristics of any other street in Region III—in the interest of maintaining continuity with the large body of scholarship on the site, I will adopt it throughout.

The Garden Houses represent the largest single residential construction project in Ostia, encompassing some 18 individual residences, 36 shops, and at least one elaborate *domus*-type apartment, the Insula delle Muse. Most scholars agree that the complex was built as a unit, based on a handful of factors: the uniformity of construction technique, the appearance of a consistent ratio of brick sources throughout the different sections of the complex, and the total absence of double walls.[73] The central apartments show evidence of being fitted with pipes and individual toilet facilities,[74] and they are decorated with some of the best wall paintings known from the 2nd century.[75] Datable brick stamps suggest that construction began around 123 and was completed a few years later, although the earliest phase of interior decoration has been dated closer to 140.[76] The thickness of the ground-floor walls and the abundance of external staircases point to the presence of at least two floors across the entire complex, with additional floors all but guaranteed in the central apartments. Over the course of the twentieth century there was some debate over the

73. DeLaine 2002: 52–54.
74. Stevens 2005.
75. See Volumes 4 (mosaics) and 14 (wall paintings) of *Scavi di Ostia*.
76. Gering 2002: 117.

precise number of floors in the central buildings, but Saskia Stevens has shown convincingly that the central apartments had four floors, with a fifth possible but unlikely due to the thickness of the walls at their foundation.[77]

From its earliest publications in the *Notizie degli Scavi*, the complex acquired a reputation as one of the best examples of imperial-era building design in quotidian (that is, non-monumental) architecture. This reputation continues into the present day, manifesting itself in a range of contexts, from incidental references to "the architect" of the building,[78] to florid paeans to the novelty of the complex's plan and the ingenuity of its designer(s).[79] Indeed, the idea that construction was carried out under the authority of a visionary architect or master builder seems all but certain. Janet DeLaine makes perhaps the strongest case for a designer without relying upon affinity with modern urban architecture. On the strength of its variation scheme, the overall unity of construction techniques across the complex, and the clear use of the *actus* as a spatial module in its floor plan organization, DeLaine concludes that it was not possible for the Case a Giardino

77. Stevens 2005: 115–116.

78. For example: Blake and Bishop 1973: 188; Meiggs 1973: 139; DeLaine 2004: 165; Stöger 2011: 355.

79. For example, Rina Cervi's conclusion to her 1998 study of the use-life of the building: "Tale operazione dovette comportare la 'ri-parcellizzazione' dell'isolato IX con la totale obliterazione dell'eventuale assetto precedente e il necessario confronto, che il progettista o i progettisti adrianei riuscirono brillantemente ad affrontare riuscendo addirittura ad imporre la 'propria' presenza, con le effettive servitù urbane rappresentate da edifici, quartieri ed elementi di viabilità anteriori." (Cervi 1999: 155). Such language continues for another page.

to have come into being except under the careful supervision of a single architect or master builder. She writes that "there are no known parallels anywhere (not even so far at Rome) for a residential/commercial development of this scale, or for such a calculated use of repetition and variety within single domestic building projects."[80]

At least one scholar has questioned the quality of that design, however. Axel Gering, whose 2002 investigation represents the most recent synthetic study of the complex, reexamines the Case's status as the apex of design in second-century Ostia by highlighting the numerous wall and doorway modifications the complex underwent over the course of its life.[81] Many date to the third century, matching a widely observed reorganization of Region III in that era, but Gering also identifies a group of modifications that he dates to the first decades of the complex's existence. These earlier modifications provide a more finely detailed picture of the use-life of the structure, suggesting perhaps that the original form of the complex was not considered the ultimate *Luxuswohnung* of the second century by its occupants.

In spite of that conclusion, when it comes to considering the building's design in isolation from its modified afterlife, Gering falls more or less in line with the traditional

80. DeLaine 2004: 170.

81. Cf. Cervi 1998, which also classifies different modifications to the building, but does not evaluate the design critically in light of those modifications.

view. He says that the studied variations in wall and room patterns construct a "sense of symmetry" while still allowing for different combinations of different types of space, going so far as to pronounce that quality "avant-garde."[82] In other words, although the quality of the design may come into question, the fact that it was designed—its *designedness*—does not.

Since most scholars have taken the existence of a designer for the Case a Giardino as a given, they have also spent some time evaluating the reasoning behind that design. One of the most widespread manifestations of this trend is the preoccupation with the notion of security and privacy. These qualities (often scholars do not distinguish between these concepts) are frequently suggested to be a significant, or even the only, motivation behind design of the complex.[83] That idea, which I call the *security principle*, is grounded in a set of observations about the placement of entrances and their relationship to the urban street network. I will show below that, although the security principle was not a guiding force for the design of the central apartments, there is some truth in the observation that manipulating access was a design consideration.

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82. Gering 2002: 136.

83. The relationship between privacy and security in literature on the Case a Giardino is complicated. The terms rarely appear in the same publication, but across the entire body of scholarship the same phenomena are described using each term by different people. For example, compare among: Cervi 1998: 155; Ellis 2000: 75–77; DeLaine 2004: 171; Stöger 2007: 355.

As one reads through the Case a Giardino bibliography, it becomes increasingly clear that there are actually two different but related security principles being addressed in the scholarship. One involves the notion of security for the residents of the central apartments, while the second relates to the security of the complex overall.

The central apartments' entrances lie along a medial corridor rather than facing the courtyard itself, rendering them more or less invisible to someone who has just entered the courtyard through any of its entrances (Fig. 7). Since they lay along a corridor which is not particularly visible, chance passersby were unlikely to cross into the (presumably) more restrictive area around the apartment entrances. Such an arrangement suggests, the argument goes, that the residents of the central apartments valued privacy in their domestic setting. This same reasoning is deployed to explain the orientation of the entire complex. The northern and eastern entrances—the only ones we can evaluate, since they connect to excavated territory—are situated well back from the main streets in the area. The northern is shielded from the Cardo degli Aurighi by the streetfront shops and the private street behind them, while the eastern is recessed sharply from the Via delle Volte Dipinte. The result is that the entrances are removed from the view of anyone walking along either street, until they are more or less directly in front of them. Someone

unfamiliar with the city or sticking to the main streets in the area would be unlikely to even be aware of the Case's existence, much less wander into the central courtyard.[84]

All arguments about security in the Garden Houses are therefore predicated on the idea that the designer manipulated sight lines in order to reduce unwanted behaviors. Axel Gering has drawn a similar conclusion, observing that

> Die Verteilung von Wohn- und Gewerbeflächen erscheint auf den ersten Blick spiegelsymmetrisch, variiert aber im Detail. Die Plansymmetrie spielte wohl eine kleinere Rolle als die auf den Betrachter bezogene, sichtbare Regelmäßigkeit. Beim Betreten des Hofes durch den Haupteingang im Osten werden sofort Tabernen sichtbar, die im Süden, Westen und Norden in die Randbebauung eingefügt sind, während die besonders luxuriösen Wohnungen wie 6, 8 oder 1 und 12 erst auf den zweiten Blick auffallen und keinen direkten Einblick bieten.[85]

In other words, once someone enters the complex, only the shops on the north end of the courtyard are readily visible. Moreover, because the walls of the central courtyard are so regularly perforated by doorways and windows, it is difficult for a visitor unfamiliar with the space to distinguish between the residential entrances in the outer ring (mostly to the south and west), thereby keeping them effectively hidden in plain sight.

The claim that different parts of the complex had different access values has become so distorted in the literature, however, that readers are presented with a picture of the Case as an isolated retreat for the wealthy class from the daily bustle of a busy port city.

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84. Stöger 2007: 355.
85. Gering 2002: 113.

Packer, for example, calls the block a "separate quarter" of Ostia,[86] while Stöger describes its location as "screened off from the traffic and noise of the city."[87] Cervi goes somewhat further, concluding that the structure's design arose from a "precisa ed esplicita volontà di isolamento legata all'elevato status dei proprietari," also noting that the inclusion of a large garden area is especially fitting for a structure with a "carattere privato."[88] Perhaps the most egregious anachronism comes from Russell Meiggs' *Roman Ostia*, in which the author labels the Case a "garden city in miniature,"[89] thus saddling the ancient complex and its residents with the baggage from over a century's worth of British suburban planning. One reason for these anachronisms is that the mixture of commercial, residential, and garden spaces closely mirrors 20th-century models for apartment buildings.[90] Simon Ellis claims this explicitly, writing that although we should be careful not to make too much out of comparisons with modern apartments, it is nonetheless "reasonable to assume that the Roman designers appreciated that, by creating the outer range of buildings around the court [as was recognized as necessary in British estate housing], the inner space would be secure and private."[91]

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86. Packer 1971: 16.
87. Stöger 2007: 349.
88. Cervi 1998: 155.
89. Meiggs 1973: 246.
90. For example: Clarke 1991: 268; Pavolini 2006: 163.
91. Ellis 2000: 75.

Such interpretations are therefore fueled more by modern Western ideas about privacy, security, and the purpose of city planning in general than by the physical remains of the Case a Giardino. It is undeniable that some of the entrances within the complex appear to have been deliberately placed to screen them from casual view, but this fact has simply been given too much weight.

Furthermore, it is important to remember the mixed-use nature of the complex. The presence of so many shops implies that a certain amount of outside traffic was not only expected, but desirable. We ought to give the Roman owners and renters of the Case the benefit of the doubt and assume that they would not have placed shops in locations where it was impossible for them to thrive. But the expectation of non-resident users of the complex creates cracks in the security principle narrative. If separation from the rest of the urban network were really the primary motivation for its design, then putting shops in the complex was a poor idea. Shops operate on the opposite of a security principle, and look instead to draw in as many potential buyers as possible. The central courtyard thus serves as a setting for different kinds of Place, encompassing both commercial and residential activities. More importantly, the kinds of Place that might appear in these settings bring with them distinct, and potentially incompatible, user groups. How the

designer chose to navigate those differences will tell us much about Romans' expectations for behavior in those Places.

The Baths of Neptune complex

The Baths of Neptune and their surroundings (what Pavolini calls the *quartiere Adrianeo*) present an interesting complement to the Garden Houses. Modern scholars have separated the zone into a handful of groups (Fig. 8): the Portico di Nettuno; block II.3; the Baths of Neptune complex; block II.6 with the Insula del Soffitto Dipinto and Insula dell'Ercole Bambino; and the Caserma dei Vigili, the barracks of Ostia's firefighting guild. Because it is a large complex of blocks that were constructed as a single unit, the Baths of Neptune complex is an excellent complement to the other major case studies in this dissertation. A public bath is by definition intended to be visited by a large number of people, so it offers a different context in which to explore the use of design-markers while matching closely the size and scale of the Case a Giardino.

That Hadrian was responsible for the construction of the baths, with a final influx of funds supplied by Antoninus Pius following Hadrian's death, has been known for quite some time. It is confirmed by both the numerous brickstamps dating to around 130 CE

and the inscription long associated with the site.[92] The largest single unit within the complex is the Baths of Neptune, so named because of its mosaic featuring the marriage of Neptune and Amphitrite. Like the Case, evidence shows that this complex was the result of a single construction effort. There are no signs of obvious property distinctions like double-walls or visible changes in construction technique or material source.[93] Exterior walls throughout the complex show the same close selection for reddish-pink bricks, and the major entryways to the Baths and the Caserma feature the same brickwork pilasters with the same travertine bases.[94] The whole complex was in some sense a single entity with a single owner, likely the city government.[95] Unlike the Case a Giardino, however, the effort in this case was funded by the imperial purse, and was intended to provide infrastructure to the booming city of Ostia in the second century CE.

The bath block sits just off the Decumanus behind a row of shops now called the Portico di Nettuno. The ground floor of the building can be divided roughly in half, with the western half containing the open-air palaestra and the eastern half holding the bath proper. I will treat each half of the block in turn. The first and most striking contrast between the bath block and the Case is the almost total lack of windows along its exterior

92. CIL 14.98.
93. On the double-wall phenomenon, see Hermansen 1981: 92.
94. DeLaine 2002: 58.
95. DeLaine 2002: 62.

walls. While windowless walls stand out among Ostian buildings, the design makes some sense in the context of a bath. Windows would prevent heated rooms from retaining their hot, steamy air, and they would also complicate construction by forcing overly-complicated routing of down-drains and other venting pipes.[96] Many bath buildings, however, had many windows—in fact, the monumental bath form we know today is in some sense defined by windows—and they helped to create a sort of greenhouse effect in the heated rooms.[97] On the other hand, the windowless walls of the Baths of Neptune helped to separate the world inside of the baths from the busy streets outside.

The interior is further controlled by the progression of rooms. The baths develop from the southeast to the northeast. A latrine and a changing room open onto the *frigidarium*, which in turn leads through heated rooms to the *caldarium*. This sequence begins from an open hall which is accessed from three directions: from the west through the palaestra, through the Portico di Nettuno to the south, or from the Via dei Vigili to the east (Fig. 9). The vestibule is thus an important space not only for establishing the environment of the baths, but also controlling movement within the interior. John Clarke has shown that the mosaics reflect the architect's intention for movement through the

96. DeLaine 1997: 153.
97. Taylor 2003: 248–250.

baths. He marks out the entrance vestibule, which featured the most elaborate mosaic in the complex, as the most important room in the baths.[98]

Given the importance of this room for controlling movement within the baths, it seems appropriate to treat any entrance emptying into this room as a primary public entrance. Two of these lie along the street—one from the south and one from the east—and a third connects the entrance vestibule with the palaestra in the western half of the block. Each is offset in some way from the *decumanus*, be it by the *palaestra* (west entrance), the secondary Via dei Vigili (east entrance), or through a long corridor opening onto the Portico di Nettuno (south entrance). None are monumentalized. The use of monumentalized entrances can often be difficult to parse,[99] but it seems odd that a richly decorated public bath funded by two imperial administrations would do so little to announce its presence. It may be that the decision not to monumentalize the bath entrances is simply part of the second-century architectural ethos at Ostia. There are, after all, a relatively small number of monumentalized entryways known at Ostia from any time period.[100] The primary entrances are not the only ones in the block, however. Excluding entrances into the palaestra, the eastern Via dei Vigili has three entrances into

98. Clarke 1975: 13.
99. Stöger 2007: 354.
100. Stöger 2007: 360. Although note that Stöger's catalog shows that the Hadrianic era is the best represented.

the block, and there are an additional two from the northern Via della Palestra. These five entrances are clearly not intended to be major public ones, due both to their size and to the fact that few of them lead into the actual bathing rooms. Instead, these entrances open onto narrow corridors, and seem to be for those who worked in the baths, fueling the furnaces or performing other maintenance duties. It is likely that they were closed, locked, or otherwise blocked for much of the day.

It is well known that Roman baths hosted a variety of different activities, from grooming and exercise to sex and drawing up trade agreements. It is important, however,to distinguish between the interior rooms of the bath and the open-air *palaestra* attached to it. Some activities, such as grooming, were more likely to happen in the bath proper, but at least as many took place in the *palaestra*. Beyond giving space for working up a sweat prior to bathing, it provided an environment for social interaction to an audience broader than just those attending the bath. As Scagliarini Corlàita puts it, "la palestra era quindi, oltre che un elemento delle terme, anche una piazza."[101] The open courtyard takes up more room in the block than the baths, and was clearly an important space independent of its connection to the baths. Thus, the physical structure of the palaestra itself reflects the more open nature of activity in that half of the block.

101. Scagliarini Corlàita 1995: 174.

Ostians could enter the *palaestra* independently of the baths from all sides. Three parallel corridors lie along the southern Portico di Nettuno, two along the Via della Fontana to the west, and two more on the Via della Palestra to the north (Fig. 10). Providing direct access from all sides shows that the designers did not want to restrict movement into the exercise yard in the same way they did for the baths proper. The fact that control of access into the two halves of the bath block were handled differently shows that the designer/architect of the space had different ideas about the nature of each space as a stage for social interaction and of the types of activities which might have gone on there. In the difference between the palaestra and the baths, then, we can see the recursive process of architectural influence at work. Romans took part in a broad range of activities in the palaestra, creating the architectural need to make the space open and accessible. The physical structure of the complex in turn could receive traffic from from the city largely independently of the baths. Its wide, open courtyard accepted this disparate traffic and provided a venue for social interaction, thus reinforcing the importance of the space. In contrast, the closed structure of the Caserma dei Vigili reflects that group's relationship to the urban environment.

The *vigiles* stationed at Ostia were a unique group. They were the only firefighting group in Roman Italy known to be controlled from another city. Detachments of the urban

vigiles at Rome under a *tribunus praepositus* were stationed at Ostia on four-month rotations, but it wasn't until the end of the Hadrianic era that a permanent barracks was constructed.[102] The *vigiles* were paramilitary, and given the extent of military participation in imperial cult, it is unsurprising to see that the center of the barracks was taken up by a shrine to the emperor.[103] Little is known of the lives of firefighters outside of Rome, but their duties in the capital were many. They were responsible for patrolling the city at night on the lookout for fires, were stationed at large public baths, and gradually took on other police duties in the centuries after their founding under Augustus.[104] The remains of the Caserma reflect the *vigiles*' complicated relationship with the city.

The placement of the barracks was not accidental (Fig. 11). It is known from inscriptions across Italy that *vigiles* oversaw the proper functioning of water supplies and of baths, which presented a particular fire risk.[105] The architect/designer of the Baths of Neptune Complex placed the barracks at a key location in between a large Hadrianic fullery to the north and the Baths of Neptune to the south. They also lie a short distance from both the Grandi Horrea and the Trajano-Hadrianic phase of what became the Horrea Antoniniani, two of the largest storage facilities so far uncovered at Ostia. The

102. Hermansen 1981: 224.
103. Reynolds 1926: 108.
104. Reynolds 1926: 99–115.
105. Reynolds 1926: 39.

barracks housed some 320 members of the *vexillatio* at any given time, which means that the building likely had four floors.

The barracks underwent a number of modifications, but in its original Hadrianic form the structure was deliberately oriented away from the other buildings in the area. The shops along the western end of the block across from the Caseggiato delle Fornaci did not exist, nor did the external staircase to the northeast. Furthermore, the monumental main entrance faced the building to the east, which had no entrances and few windows on the street level. Instead, the structure turns its focus inward. The ratio of four internal staircases to a single external one reflects this. We can also see it by comparing the latrine in the barracks with the one in the palaestra. The very existence of a second latrine in such close proximity to the one in the Baths of Neptune suggests that the latrine in the barracks is not intended to be open to the public, and its placement in the structure adds further support to this idea. In the bath block, the latrine clearly is visible from the northern end of the courtyard, and, while it is not accessible from the street as in the forum baths, it opens directly onto the palaestra. The latrine in the barracks is also set into a corner, but its entrance is not visible from the central courtyard. Someone would have to already know of its presence to know that the hallway next to the southeastern stairway led to it.

Nevertheless, the picture may not be so clear. Reynolds notes that the step along the eastern entrance to the barracks has been heavily worn by foot traffic.[106] The structure underwent modifications that encouraged more activity around its walls, a reflection perhaps of the gradual integration of the *cohortes vigilum* into daily municipal operations in Rome.[107] Unfortunately, much of this area was uncovered in the late nineteenth century, and information necessary for gaining a better understanding of the relationship between the barracks and its surroundings has been lost. In particular, the city block II.12 directly to the east bears a striking resemblance to the plan of the Caserma, and seems to date to roughly the same time as the rest of the complex.

The Aurighi Building (III.x.1–3)

The final building I will survey in this chapter is also the most difficult to approach (Fig. 12). The III.x block, which in later chapters I will call the Aurighi Building for reasons that will become clear below, is traditionally divided into three units: The Caseggiato del Serapide to the north (III.x.3), The Terme dei Sette Sapienti in the middle of the block (III.x.2), and the Caseggiato degli Aurighi to the south (III.x.1). The block is difficult to assess for two reasons. First, it is the most spatially complicated block at Ostia,

106. Reynolds 1926: 109.
107. Reynolds 1926: 37–39.

with few solid walls and a high number of potential entry points, passageways, and viewsheds. Second, its remains also highlight a construction history that is hard to tease out, with at least one radical renovation and a series of smaller changes and installations. In some cases, the current state of the building does not allow for any insight into the earlier phases of the structure. Because of reconstruction, some of the upper-story rooms are no longer visible from the ground, and the excavation team mostly documented epigraphic or sculptural finds. The photographic record, while a vital asset, only preserves the excavations haphazardly. There is little doubt that by the beginning of the third century, the block could be neatly divided into these three sections. But as I will show below, the building was originally designed and executed with a much different plan in mind.[108]

In spite of the difficulties, our understanding of the Caseggiato degli Aurighi and its relationship with the built environment around it can be improved. Stephan Mols and Daniela Scagliarini Corlàita have done the fundamental work of identifying the major construction phases and assigning a general function to them (e.g., commercial or residential), but laying out a plan of the building in its earliest phases and evaluating its

108. Mols and Scagliarini Corlàita are the only two published texts to delve deeply into the building's architecture and phasing. There are also two unpublished dissertations that deal with the Aurighi Building (Rose 2005 and Richardson 1992). Unfortunately, neither of these dissertations proved to be particularly useful to this one, the former because of its almost complete lack of citations, the latter because the Free University of Amsterdam was unwilling to loan out the text.

design was not their intent. Further, Thea Heres' in-depth analysis of the phasing of the Terme dei Sette Sapienti has rendered most prior analysis outdated by showing that the entire III.x block was more cohesive in its form before the final phase of the building.[109] I will therefore take this opportunity to lay out the current state of our understanding of the block.

The block sits in the very center of Region III, fronting the Cardo degli Aurighi. To its west sit the so-called Casette-Tipo apartments (III.xii–xiii) and the arcaded commercial area III.xiv.1, while to the east lie numerous commercial buildings grouped around two courtyards, III.i.9–15 and III.ii.7–12. Although some remodeling continued to take place after the Severan era, no new buildings were erected. Unfortunately, Calza made little effort to explore the levels below the ancient levels visible at the site today, nor has there been any major work in the area since his excavations. As a result, remarkably little is known about this important part of the city in the time before Trajan, and there is no information at all regarding the time before Domitian.

The block was one of the highlights of the first two years of the 1938–42 excavations. Work in this area proceeded so swiftly that the timeline recorded in the official *giornali di scavo* in the archives at Ostia Antica offer little more than a list of inscriptions uncovered

109. Heres 1992: 94.

in the course of excavation.[110] Surely Calza and other members of the excavation team took more detailed, narrative notes, but their whereabouts unfortunately remain unknown. As it stands, most of our information about the remains of the building prior to reconstruction consists of a four-page prose description of it in the journals and the documentary photographs taken during the excavation. While the precision of the written record leaves much to be desired, it is nonetheless possible to draw out a number of interesting facts from it.

Excavation of the block proceeded from North to South, beginning with the Caseggiato del Serapide, although work had been going on for some months before the discovery of the shrine to Serapis and the inauguration of that name. In the first years of this period, the buildings in the work area—from the Serapide to the Aurighi, and also including the III.xiv block to the west—were believed to be a single unit called *Casa C*. As Region III was uncovered further the idea of a single building did not hold up, but even the earliest excavators noticed the high level of interaction between the buildings in this area.

110. My heartfelt gratitude to the following for access to the archives at Ostia: Dott. Francesco Prosperetti (Soprintendenza Speciale per il Colosseo, il Museo Nazionale Romano e l'Area Archeologica di Roma), Dott.ssa Paola Germoni (funzionario responsabile, Archivi Scientifici), and Sig.ra Elvira Angeloni (Archivio Fotografico).

As the photo archive attests, the two Caseggiati at either end of the block were preserved to at least the second floor. Moreover, the earth removed was crammed full of bricks and roof tiles, which helps to account for the thousands of legible stamps recorded and presented by Bloch in the appendix to the first volume of the *Scavi di Ostia*.[111] Unfortunately, the unusual state of preservation also presents serious hurdles to anyone analyzing the building today. In order to stay on schedule during excavation, Calza's team had to reinforce everything as they went, meaning that reconstruction took place at the same time as excavation. And since the photographs only record a few isolated moments of the process, the vast majority of decisions made about those reconstructions have been lost. Simply put, there is no way to verify whether the remains visible at the site today accurately reflect the remains uncovered by the excavators in the 1930s.

Nevertheless, there is reason to treat the remains visible today as a faithful reconstruction. The ground floor of the entire block was verifiably below-ground at the beginning of excavations, and most of the shoring up took place at the more unstable higher levels. Any seams or other visible differences in masonry that began near the foundations can therefore be assumed to reflect the ancient state of the building. Perhaps the best reason to treat the reconstructed walls as accurate is their sheer complexity. In

111. Calza 1953: 215–227.

many parts of the block—for instance, the rooms to the East of the the Caseggiato degli Aurighi's Courtyard 1 (see Fig. 13) or the transitional area between the Aurighi and the baths—the relationship between the different phases of construction is so difficult to parse that Calza's team cannot have invented them. Indeed, it seems more likely that misinterpretations during reconstruction would have led to simplified masonry rather than the mishmash of seams, vaults, closures, and openings that make up the structure as it appears today.

Thanks to the vast quantity of datable brickstamps recovered, along with remains of more than one layer of interior wall painting, the broad outline of the block's chronology is secure. Absolute dates for the later renovations remain tentative, but it is clear that there are three major phases in the life of the block: initial construction in the early to middle second century; a major renovation later in the second century; and another substantial redecoration and reorientation that resulted in the building seen today, likely some time in the early third century. For the first phase, brickstamps point to a gap of at least twelve years between the beginning of construction at the Caseggiato del Serapide and the end of work on the Caseggiato degli Aurighi, with the Terme dei Sette Sapienti being constructed in between. Such a simple narrative, however, does not give a clear picture of the building's development, especially since the baths as they stand today were

likely not installed until the early third century. I will therefore briefly describe each phase of the building's construction before taking an in-depth look at the appearance of the building as it appeared after initial construction.

Phase one: initial construction

The earliest construction for the III.x block began in the north with the Caseggiato del Serapide, in which some 87% of recovered brickstamps are from the year 123. A smaller number of bricks from the years 124–126 suggest that the structure was not finished until 126 or 127.[112] The floorplan—a central courtyard flanked by small *tabernae*—would persist for the life of the building. The courtyard is surrounded by a vaulted portico of double height (that is, spanning two floors rather than one) supported by square brickwork pilasters decorated with string cornices at a height of roughly 5.25m (Fig. 14). In the southeast corner of the courtyard, a staircase leads to the upper floor(s), while a staircase in the northwest corner perhaps provided access to the mezzanine level of the shops along the western side of the courtyard.

It was around this time that the so-called Tavern of the Seven Sages, a Domitianic bar or restaurant featuring a comedic painting of the seven sages, was absorbed into the structure that was built around it. Unfortunately, excavators do not seem to have made an

112. Calza 1953: 224.

effort to go below the floor levels of the block to see whether there were more pre-Hadrianic buildings in the area. It is certainly likely that there were, since the Via della Foce is the closest east–west thoroughfare to the Tiber and runs into the mouth of river, thus making the land fronting it high-value real estate.

Although the Caseggiato del Serapide was begun some time in the Hadrianic period, the Aurighi structure to the south was not constructed until at least 12 years later, around 140 CE. A graffito mentioning the sale of slaves in the consular year 150 was fortuitously preserved in a renovated wall, providing a *terminus ante quem* for the construction of the building (more on which below).[113] In the intervening period, the Terme dei Sette Sapienti underwent a series of construction events (outlined in detail by Thea Heres) that resulted in the southward expansion of an open, vaulted space supported by brick pillars (Fig. 15).[114] This motif was continued in the Aurighi, as exemplified by the eastern façade of the building, where the same decoration continues the length of the building from the baths to the Cardo degli Aurighi (Fig. 16). Because the covered pathway separating the Aurighi's courtyard from the Sette Sapienti—the corridor containing the eponymous paintings of charioteers—did not exist in the initial phase, the block appears as a series of covered passageways aligned around a large open courtyard.

113. Mols 1999: 168.
114. Heres 1992.

The unity of layout, decoration, and organization of the Sette Sapienti and the Aurighi sections of the building in this initial phase lead me to conclude that it was a single structure. And since the bathing complex was particularly small at this time, I have decided to call the entire unit the Aurighi Building, distinct from the later two units called the Caseggiato degli Aurighi and the Terme dei Sette Sapienti.

Phase two: the "great rebuilding"

At some point after the Aurighi Building was constructed in 140, possibly as little as a decade later, a major renovation or reconstruction project was undertaken.[115] According to his documentation of the "grande ristrutturazione," the bulk of this work involved the insertion of another floor in between the ground floor and the original "second" floor, which sat at a double height of 20 Roman feet (Figs. 17–19).[116] Apart from increasing usable space in the building, the great restructuring had a number of other consequences for the Aurighi Building. Perhaps most importantly, it resulted in constricting many of the previously open arches lining the major corridors of the complex, and completely closing some others. Not only did this dramatically shift the flow of potential traffic within the building, but it cut off the light source for most of the ground floor, rendering some

115. Mols 1999: 361. This chronology rests on Mols' observation that the understair graffito mentioned above is inscribed in plaster that, on his interpretation, belongs to the second phase.

116. Mols 1999: 361ff.

corridors very dark even in the middle of the day (especially Corridor 6, see Fig. 20). It was also at this time that the corridor with the charioteers was constructed, bisecting the central courtyard.

There has been little success in explaining the impetus behind the great rebuilding. Marion Blake suggests that the form the building took in the second phase may have always been the intended design, and there was merely a gap in construction for some reason.[117] But it seems patently absurd that the building team would have gone to such great lengths to continue the open, pillared floorplan begun in the middle of the block some years earlier if they were planning on blocking it all up 10 years later—ruining the lighting of the building in the process. Mols, who examined the block meticulously, does not explain the restructuring in its own terms, instead appealing to a general trend toward increased residentialization of buildings at Ostia in the mid- to late-second century.[118] An added floor would certainly have increased the rental value of the property, perhaps significantly, but there is another ready explanation both for the modifications and also for Mols' findings that they occurred shortly after the building's initial construction: structural instability.

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117. Blake and Bishop 1973: 181–182.

118. Mols 1999: 365–366. See also the summary of his longer study, presented in the same volume (Mols 1999).

The entire III.x block was built on top of sand transported to the location as part of a ground-raising project in the Trajanic era. Ostia is also built on an alluvial floodplain, and as such is almost totally devoid of bedrock or other solid surfaces on which to lay foundations. Moreover, the Aurighi Building in its initial form had a daringly open design defined by an almost total absence of solid walls, instead favoring rows of vaulted pillars. It is possible, then, that the great rebuilding—which involved buttressing the porticoes with additional supports and installing a covered walkway transecting the courtyard—was intended to shore up weaknesses in the building's spindly structure. One of the pillars in the northeast corner of the complex near the III.x/III.i/III.ii transitional zone shows some signs of structural weakening (Fig. 21).

Phase three: transition to final form

In the final phase of the III.x block, the Aurighi Building was blocked up by the installation of a residence in the south and the Sacello delle Tre Navate in the east, at the same time as the portico of the III.xiv block to the west was having walls installed in its arcades (see Figs. 22–23). At the north end, in the Caseggiato del Serapide, the shrine to Serapis was installed in the courtyard and the doorway linking the courtyard to the baths to the south was enlarged and monumentalized with a marble threshold and painted plaster pediment (Figs. 2.24–25). Based on comparisons of the wall-painting techniques

found on the surface layers of the walls, Mols dates these renovations to the beginning of the third century, possibly around 205 CE.[119] This time frame accords with Heres' observations that the heated rooms of the Terme dei Sette Sapienti were not installed until the Severan era.[120]

The third phase of the block therefore represents an almost complete reversal of the orientation of the building. While in the initial phases there were few walls and wide-open sight lines, intended to connect the commercial zone within the building to the pre-existing traffic routes in the area, by the third phase of construction many of those pathways were heavily reduced and their sight lines almost eliminated. Movement from the Cardo degli Aurighi and the III.i and III.ii commercial complexes was restricted—mirrored by the closing of the western doorway of the III.ii.6 *horrea* to the east. Instead the baths, now greatly expanded, seem to have become the main attraction in the block. Not only are more rooms created, but they are painted in a more lavish style and furnished with marble basins (for example, Fig. 26). The popularity of these baths also explains why, as Mols observes, the Caseggiato del Serapide was reduced from a market-like space centered on an open courtyard to serving as a monumental entrance for the baths. Mols goes so far as to call it the *fauces* of the baths, writing that "Da questo momento le *fauces*

119. Mols 1999: 364.
120. Heres 1992.

ed il cortile del Caseggiato del Serapide costituivano un'unità funzionale con le terme dei Sette Sapienti."[121]

Plan and description of the Aurighi Building in its initial phase

Because one goal of this project is to evaluate of the design-markers at work in the Aurighi Building, it is important to have a clear picture its initial form. This means that later renovations and additions—which, as I have shown, were significant—must be imagined away in order to understand the building as it stood immediately after initial construction.

As I have explained above, the earliest phase of the III.x block had an open plan without clear divisions. I have reconstructed its layout in Figure 27, which to my knowledge offers the first comprehensive plan of the III.x block at the moment of its initial completion.

With just a handful of solid walls across the structure, foot traffic could circulate freely between the open courtyard and the vaulted spaces of the Aurighi and the Sapienti sections of the complex, as well as between the III.x block and the commercial complexes immediately to the east. Since the vaults rose to a 20-foot height, all of the corridors would have received ample daylight. While such an open floor plan does not lend itself to

121. Mols 1999: 167.

residential life, it is ideal for commercial activities that depend on the constant circulation of potential customers. Given that Region III of Ostia is dominated by commercial zones, we may suppose that the ground floor of the Aurighi was oriented toward the same activities.

The wide-open plan of the Aurighi Building would allow not only for the free movement of people within the space—business deals were often done in basilicas and other walkable spaces[122]—but also for impermanent shop stalls to be set up in a variety of different arrangements according to need. This format, while diverging from the traditional basilical halls of Rome, is not unique to the Aurighi Building. The Loggia of Cartilius Poplicola (IV.ix.1) near the Porta Marina predates the Aurighi Building by 10 or 15 years and echoes the structure on a smaller scale (Fig. 4, 28).[123] Moreover, the Aurighi's structure must have been considered at least moderately successful, since the III.xiv block to its immediate west mirrored it closely. Indeed, the two were physically joined in a later phase by a covered walkway, the creating the so-called Via Tecta degli Aurighi.

122. O'Sullivan 2011: 87.

123. Blake (1973, p. 200) calls the Loggia of Cartilius "an elegant commercial center." Although she does reference this predecessor in her description of the Aurighi Building, she draws indirect comparison between between them by referring to the Aurighi as "a species of loggia" (p. 180–181).

The defining characteristic of the courtyard is certainly its brickwork pillars, each of which is adorned by the same kind of string cornice seen in the Caseggiato del Serapide to the north, sitting at the same height: roughly 5.25 meters from the ground. The pillars continue to the south of the courtyard, forming a sort of deep portico that runs parallel to the street, and although many of these are not preserved high enough to provide assurance, it seems clear that the decoration continued the entire length of corridors 1 and 5 all the way to the Cardo degli Aurighi.

The Aurighi courtyard also presents a puzzle: of the 14 intercolumniations on the west and east corridors, *none* of them is equal. The pillar-to-pillar spans deviate by more than 30cm, which, while not exceptionally large, is unlikely to be the consequence of simple error. Perhaps the requirements for precision in privately funded, non-monumental construction were lower than for imperially funded projects. In a commercial environment like the area of Region III surrounding the Aurighi, immediate return on investment may have taken priority over meticulous execution. Moreover, the plot of land was of high value, situated as it was between major streets and high-traffic commercial areas. So getting the building finished and usable must have been a pressing issue—especially if the plot had lain undeveloped in the years since the construction of the Serapide.[124]

124. A fact which is still in question because there have been no test trenches below the currently visible floor level.

At the east end of the building, the Aurighi joins with the III.i and III.ii commercial complexes. For brevity's sake I will call this area the *transitional zone*. In the initial phase of construction, the transitional zone was much more open than it was by the third century. Neither the Sacello delle Tre Navate nor the building III.ii.9 were present, and the pillars near the small Trajanic shrine were unblocked. Actually, the chronological status of the building III.ii.9 is somewhat confused in the scholarship. According to the fourth volume of the *Scavi di Ostia*, Becatti dates the building on the grounds of mosaic style to the very beginning of the second century CE.[125] This is impossible for two reasons. First, the ground level of the III.ii complex is much higher than any of the surrounding buildings, all of which date to at least the 120s (see Fig. 29). Second, the building must post-date the Aurighi Building because its western walls are built onto it for support. It seems safer, then, to throw out Becatti's date in favor of a *terminus post quem* of 140 CE. At any rate, as I will argue in later Chapter 5, the emphasis on openness and connectivity to the blocks neighboring the Aurighi Building shows that the designer of the block was interested in encouraging as much movement into the his building as possible.

Some of the only solid walls on the ground floor of the complex make up a small unit in the west third of the block. This unit (Rooms 13–18 in the plan on Fig. 12) has variously

125. *Scavi di Ostia* v. 4: 99–100.

been defined as an "officina" and a hotel.[126] Because it has two doorways—one facing the east-west Corridor 6, and the other facing the courtyard along Corridor 5—it seems difficult to imagine it being an apartment. Each of these corridors could be expected to have relatively high traffic, since Corridor 6 connects the area west of the Aurighi to the central courtyard, and Corridor 5 is the longest continuous path through the entire III.x block. Regardless, since solid walls concentrate here in a way they don't elsewhere on the ground floor, it is reasonable to suppose that the kinds of Place inhabiting this space were different than in the rest of the Aurighi Building.

As we move northward in the block, into the section that would later be taken over by the Terme dei Sette Sapienti, it becomes difficult to mark out the original phase of the building precisely. Clearly the vaulted pillars continued in this area; some of them are still visible today (see Figs. 15 and 30–31). However, the exact relationship between some of these rooms is less obvious. In particular the spaces highlighted in Figure 32 are almost impossible to decipher, having been completely blocked up and reworked during the great rebuilding. No photos of them were taken during the excavation and reconstruction efforts of 1938–42. We may therefore never know precisely how this part of the building connected to the rest. These may be among the earliest rooms with dedicated waterworks

126. Heres 1992: 94; Pavolini 2006: 141–142.

in the entire complex, perhaps even the precursor of the baths, so the loss of information is particularly lamentable.[127]

Though its footprint is large, the Aurighi Building has few staircases; only three are clearly part of the original phase, and a fourth is ambiguous. I will spend more time analyzing the layout of the building and its consequences in Chapter Five, but for now suffice it to say that the disposition of the upper floors remains an open question. This skepticism may surprise anyone visiting the site today, since it is the only building in the west end of the forum in which parts of the second and third floors are preserved well enough to allow visitor access (Fig. 33–34). Nonetheless, with the exception of the rooms connected to Stair 3 (labeled on Fig. 12), there are many questions about how upper floors were even accessed. The area highlighted on Figure 32 is especially problematic. In the reconstructed building today, mosaic flooring is visible on what would be the third story of the complex, yet the means of access to it is not at all clear. The first floor was almost certainly reached from the double staircase S1/S2 on the right-hand side of the building, but no stairwell for access to the subsequent floors remains on the east side of the building. Perhaps it only existed on the second floor and up, and it sat in the portion of the block that was mostly destroyed by the second and third phases of reconstruction. In spite

127. Heres 1992: 104.

of the three seasons I spent documenting and studying the III.x block, I confess that I still cannot reconstruct the upper floor rooms on the east side of the building with any authority. They likely will remain a mystery.

Chapter summary

The Triangle Block, the Garden Houses, the Baths of Neptune Complex, and the Aurighi Building are four of the largest building complexes known at Ostia. Each possessed many rooms, walls, windows, doorways, and entrances, and they played host to many different kinds of Place. They are therefore the ideal sites for studying how we can evaluate architectural remains for evidence of social planning on the part of Roman designers. Over the next two chapters, I will explain how staircases and windows are vital tools for improving our understanding of the Roman built environment.

Chapter 3: Staircases as Design-Markers

In any investigation of urban architecture in Italy, it is impossible to avoid the thorny issue of verticality. The issue is thorny not because of any doubt that most Roman cities in Italy were vertical ones, but because so little of upper floors remain anywhere in the peninsula outside of the Vesuvian eruption zone. For this reason, staircases have tended to show up only in research on Roman domestic environments, a realm of scholarship dominated by the houses of Pompeii and Herculaneum.[128] The supreme position the Bay of Naples has held in research on cities' upper stories has resulted in improved understanding of the architecture and daily life of those towns at the same time as it has reduced the study of upper-floor architecture in any other site to brief comparisons to Pompeian or Herculanean houses.

According to that long-established tradition, staircases are taken to indicate the separation of housing into units. To explain by way of example, let's turn to the Samnite House in Herculaneum. This relatively small house boasts two sets of stairs that serve different functions within the space, each of which falls neatly into the two classes established by scholarship: *internal* and *external*. Put simply, internal stairs are those accessed from the interior of a building (usually a house) and used by the inhabitants of

128. With the notable exceptions of Clarke and Packer, who include Ostia.

that space (usually a household). External staircases, on the other hand, are accessed from outside a building (almost always via the street) and used by some other group. The external stair in the Samnite House post dates the original construction, suggesting that the owner wanted to rent out some part of the upper floor.[129] The idea is that, by creating external access, renters wouldn't have to use the internal staircase deep inside the ground floor, thus avoiding unwanted penetration of the domestic realm by non-family members or other unauthorized users.

The example set by the Samnite House—although there are dozens of others conforming to the same model across Pompeii and Herculaneum—establishes two important aspects of the traditional interpretation of the Roman urban environment. First, Roman builders thought it necessary to treat households as distinct from each other, even when they occupied the same structure. Second, we can treat internal staircases as representatives of upper-floor space *within* a household, and external ones as upper-floor space *distinct from* the social space inhabiting the ground floor. Each of these ideas is, I believe, widely accepted among scholars of Roman urbanism. And in cities like Ostia, where upper floors are poorly preserved (if at all), they have become primary assumptions. In fact, over time those two assumptions have transformed into an even

129. Pirson 1997: 177.

more rigid axiom of architectural analysis, where any external staircase, regardless of its location, necessarily represents residences distinct from those on the ground floor.[130]

As with any dichotomy, it shouldn't come as much of a surprise that a more thorough evaluation of the evidence has problematized the internal–external paradigm. James Andrews' three-volume dissertation has convincingly shown that upper floors housed a broad variety of social environments, not only domestic space.[131] And when we begin to consider non-residential or mixed-use environments, which the vast majority of city blocks at Ostia are, the internal-external dichotomy becomes even less useful.

After all, there are a number of issues at stake when deciding where to place a staircase within a built environment: what sort of environment is it going into (that is, what kinds of place will inhabit its space)? To what sort of environment will it lead? Who will be allowed to use it, and who needs to be discouraged from using it? As I laid out in the first chapter, these kinds of questions are fundamental to the creation of any inhabited structure. Staircases are thus design-markers and as such represent the results of this kind of architectural decision-making.

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130. Pirson 1997: 177; Andrews 2006: 110. This idea can be seen deployed at Ostia in, for example, DeLaine's explication of the Baths of Neptune complex (DeLaine 2002).

131. Andrews 2006.

After careful exploration of the staircases across the city, I have concluded that there are two vectors of analysis which offer up information about the designer's socio-spatial expectations: placement and visual status. As we will see, this two-front approach reveals Place divisions and, importantly, expected paths of movement. But first I must introduce Romans' staircase construction techniques.

Fundamentals of staircase design and deployment

Outside of theater and amphitheater design, staircases are mundane architectural stuff, generally confined to narrow secondary spaces and deemed unsuited to artistic flourishes. But because the humdrum nature of the task left most of the details to the individual project's designer or building team, there is a great variety in staircase forms. The height and depth of steps, as well as the overall slope of the staircase, are virtually unique to each building. Nonetheless, whatever differences they have in their particulars is overshadowed by the uniformity of their overall appearance.

Apart from some monumental structures like Trajan's column or the Colosseum, staircases generally took one of two main forms. The first is the simple single-ramp staircase, where stairs rise continuously along a single vector from one floor to the next. The second type of stair is the so-called "scissors stair," where the staircase stops at a

landing and doubles back, arriving at the upper floor more or less directly above the start of the stairs on the floor below (Fig. 35). Scissors stairs were by far the most common at Ostia, since habitable space was at a premium, and any stair rising higher than a mezzanine level would have required an enveloping corridor longer than was usually available.[132] By hitting a landing and doubling back, architects save themselves from having to accommodate a long passage, but it does create a pair of shorter parallel corridors, similar to a modern stairwell but without cantilevered steps. On the ground level, one of those passages is necessarily left unoccupied, so builders were free to put the space to use in other ways. The result is that doorways are frequently found in pairs throughout Ostia, one holding stairs and the other serving as access to somewhere on the ground floor.

Roman staircases are all built from any of three basic materials: wood, stone (including marble), and brick, where either of the latter materials normally surmounted a shallow concrete vault. Although it may seem like a given that most of the stairs at Ostia were made out of brick, all three materials were deployed in different combinations.[133] Almost all of the shops in the city had wooden ceilings separating the ground floor from the mezzanine, and the vast majority of their stairs were also of wood, although some, like

132. Packer 1971: 28. Although Packer notes that single-ramp stairs could be placed one over the other, thereby saving some space—and may have proven more popular in tight space arrangements along the Decumanus than scissors stairs.

133. Packer 1971: 30–31.

those in the Caseggiato del Larario, sprang from several lower steps made out of brick (Fig. 36). In the largest and most expensive buildings at Ostia, brick and stone staircases dominated, and these have often been taken as a visual signal of the building owner's wealth.[134] As we will see later on in this chapter, staircase material can indeed serve as a visual cue, although not necessarily as a simple status marker.

Most staircases at Ostia, then, followed an identical format: scissors stairs arranged in parallel corridors. Many were made out of wood; a sizable minority were of stone or brick. But how those stairs were arranged in their buildings with respect to other rooms and doorways varies widely.

Stair placement

The impact staircases have on the experience and functioning of the built environment is well-known. We have already seen one exceptional example of this in the Seattle CPL, where the absence of readily visible stairs caused difficulties for users. But scores of studies have also shown that, in the modern world, moving to the proper floor of a building is the prime goal for all wayfinding tasks. In short, because our world is so

134. Packer 1971: 30. He writes: "Consequently travertine stairways appear only in buildings of the best quality."

dominated by our body-bound experience of horizontal space, it is vertical space that is the most controlling.[135]

The evidence at Ostia shows that this also held in antiquity. Indeed, stairs were even more important in a city like Ostia than New York because the ancient city's quintessentially brick-and-mortar fabric meant that stairs were more or less the only option for vertical movement available to builders. And in a complex urban environment where large-scale renovations could affect all properties in a block, the decision to place staircases took on grave importance.

The Case a Giardino complex is the best place to begin our analysis of stair placement for all the reasons outlined in Chapter 2: it is well-preserved and -published, and it shows clear signs of having been designed in the modern sense of that word. So if there is any city block that displays thoughtful (or at least purposeful) deployment of stairs, it will be this one. As it turns out, there is a wealth of socio-spatial information to unpack in the 37 stairways of the Case. And although the plan of the complex gives the impression of a unified design (see Fig. 37), it is only the central apartments which are more or less symmetrical. Each side of the outer ring reveals a unique layout with a different mixture of shops and apartments, and in turn a different number of staircases,

135. Gehl 1987: 63; Stokols 2000: 271–272; Hölscher *et al.* 2006: 294. Laurence argues for a similar principle the Roman world: Laurence 2013: 405.

corridors, and entryways. So each section should be approached on its own merits. Since staircases have mostly been studied in domestic contexts, I turn first to the apartments.

The northeast corner of the outer ring contains three of the largest residences in the Case a Giardino: The Insulae delle Volte Dipinte, del Graffito, and delle Muse, respectively (Fig. 38). The House of the Muses in particular is frequently held up as the largest, best decorated, and closest approximation of a traditional Pompeian *domus* in the known extent of the city prior to the reemergence of detached houses in the mid-third century CE.[136] There is good reason to consider these three houses luxurious: all their ground-floor rooms have painted walls and decorated floors, they have their own street entrances, and each contains an internal staircase. Recall that, on the traditional interpretation, internal staircases extend the household environment of the ground floor onto another level. Looking closely at each of these three houses, however, it becomes clear that each stair has a different relationship to the apartment entrance, suggesting different socio-spatial expectations on the part of the designer.

Consider the House of the Graffito. Here the stair connects to the main entrance via a narrow entry corridor, but it is set opposite a secondary doorway that leads to the rest of the ground-floor rooms (Fig. 39). This secondary door has its own stone threshold that

136. For example: Packer 1971: 72; Blake and Bishop 1973: 188–189; Meiggs 1973: 139; Clarke 1991: 28.

shows signs of being outfitted with a lockable door.[137] So the internal stair for the House of the Graffito should not be classified in the same way as a more traditional internal staircase like the one inside the Samnite House. The staircase is accessed at one level removed from the street, yes, but it is also separated from the inhabited spaces of the ground floor. Such an arrangement would allow for the upper and lower floors to be rented out separately, with the two separate renters sharing only the entry corridor between them. Yet keeping the staircase inside a primary entrance from the street allows for the possibility of renting out both floors as a single unit. The internal staircase of the House of the Graffito is neither truly external nor internal, in the traditional definitions of those categories. It does not necessarily extend the ground-floor household onto a second floor, but neither is it a staircase that any person walking the street would be likely to encounter.

The traditional concept of the internal staircase breaks down even further in the House of the Muses. Among the many qualities for which this residence is praised is the frequently cited statistic that it is the largest house in second-century Ostia.[138] Yet this "fact" relies on the inclusion of the usable area of the hypothetical second floor, which in turn relies on treating the House's staircase as a normal internal one. Indeed, the staircase in the House of the Muses has received a surprising amount of attention given the general

137. Adam 1994: 297; Ulrich 2007: 187–188.

138. For example: Meiggs 1973: 249; Clarke 1991: 270; Pavolini 2006: 156.

disinterest in staircases. But that attention is normally filtered through a preconceived opinion of the House as the epitome of wealthy residences at Ostia, meaning that everything within the house must more or less conform to our understanding of elite Roman housing based on Pompeii.[139] So not only does the internal staircase necessarily continue the household onto a second floor, but it is a "private" staircase, leading to the backstage areas of the home reserved for the family and invited guests. Russell Meiggs describes the staircase as "wider and more imposing" than the others at the Case, and thanks to the second story of residential space it provides the inhabitants "as much accommodation as an independent house."[140] In the same way, James Packer allows the reputation of the House to lead him to mischaracterize the staircase in the face of obvious evidence. In his careful comparative analysis of stairs, he writes that only external staircases in the best-appointed buildings like the Case a Giardino receive travertine steps, and even then only the "easily visible" ones. "The interior stairways of the same buildings are of wood," he writes, "for example, the Insula delle Muse."[141]

He is right that all evidence points to the staircase of the House of the Muses being made out of wood. But unfortunately, the placement of this stair makes it difficult to

139. As, for example, by Ellis (2000, p. 77) who calls it "a conventional peristyle house."
140. Meiggs 1973: 246.
141. Packer 1971: 30.

support Packer's characterization of all wooden stairs as less visible. It turns out that the internal staircase in the House of the Muses is as close to external as is physically possible—right inside the doorway (Fig. 40). And while some stairs are oriented such that they are invisible from the street even if they are placed right next to the entrance (on which much more below in the Visual Status section of this chapter), the rise of this staircase is oriented towards the street. So, in fact, this wooden staircase (which is not, in fact, any wider than any other stair in the Case a Giardino) is very clearly visible to anyone passing through the area along the Via delle Volte Dipinte (Fig. 41).[142]

If we decouple the House from its longstanding but loosely supported luxury status, we can evaluate the staircase and its built environment on their own terms. It turns out that the stair's placement suggests an altogether different scenario, one slightly more consistent with the design strategy apparent elsewhere at the Case a Giardino. Because the stair is placed so near the entrance, it seems possible (if not likely) that the designer of this house anticipated that each floor might need to be rented as separate units. If it is true that a particularly wealthy family occupied the ground floor of this house—which seems

142. Provided that the doorway is left open, which is somewhat of an open question in the literature. Many works on Roman housing or domestic architecture (Clarke 1991; Adam 1994; Ellis 2000) do not mention the issue and instead merely mention that one enters a home from the *fauces*. Vitruvius (*De Arch*. 6.5) points out that all houses have public areas to which "even uninvited members of the public may come by right," which suggests that a doorway might remain open. The arrival scene of Trimalchio's dinner party (*Satyr.* 28) mentions an *ostiarius*, but unfortunately says nothing of the door itself. See also Jeremy Hartnett's (2008) work on Pompeian street façades and doorways, on which he also has an upcoming book with Cambridge University Press.

hard to deny, given the quality of the wall and floor decorations—then they may have been even more particular about defending their household space from unauthorized penetration. So the stair was placed in such a way that Place conflict was avoided as much as possible.

Indeed, the idea that even the most luxurious apartments in the Case a Giardino were in fact primed for multiple occupancy is not a new suggestion. Axel Gering has proposed that many of the renovations and modifications undertaken at the Case following initial construction reflect a response to a housing shortage caused by the economic boom of the early and middle 2nd century.[143] His argument rests primarily on the dating and location of later modifications to the complex. In the central apartments, for example, dividing walls were put up in the two decades after initial construction, thus permanently halving the size of the ground-floor units. But the placement of the stairs in the Houses of the Muses and of the Graffito might well ask us to reconsider the timing of those divisions. And even in the central apartments, the stairs were arranged to accommodate the kind of subdivision that Gering associates with a later period. Each internal staircase (the plans in the two buildings are virtually identical) is arranged next to a secondary doorway, and along a corridor which does not connect to the rest of the

143. Gering 2002: 137.

ground-floor house. So the stair could have acted as an access point to the second story separate from the spaces on the ground floor, in essence dividing what is traditionally viewed as a two-floor apartment into two separate residences. The later modifications only solidified the subdivisions of the architecture which were already suggested in the original design.

But the stair at the House of the Muses also invites us to reconsider other longstanding ideas about Roman housing and domestic social space. If we imagine a context in which both floors are occupied by a single household, then accessing the upper-story spaces, traditionally considered to hold lower-access (or "private") environments, would require more or less exiting the home and re-entering. Thus anyone who wanted to go into the backstage parts of the house would first have had to pass in full view of the general public passing by on the street. There is no reason to believe that this staircase could not have been situated elsewhere in the house if the designer had meant it to be a truly connecting space.

Thus there are two reasonable scenarios for how the staircase played out in the social division of space. First, the two floors were treated as separate residences with a shared vestibule. Second, both floors were treated as a single household, only the

members of that household must have been willing to move back and forth between low-access areas via the public-access area at the street entrance.

Although it is not as large or as well-decorated as the House of the Muses, the House of the Yellow Walls is the only house of the three with a more traditional internal staircase. Relationally (that is, as it would be represented on a J-graph or other access analysis-driven evaluation), the stair within the house is identical to its neighbor at the House of the Graffito. Each is accessed via an entrance vestibule that connects the outside world to the deeper environment of the house's interior. But the nature of those rooms is different. Unlike the House of the Graffito's narrow corridor furnished with a secondary threshold, the House of the Yellow Walls features a vestibule of substantial size. It is larger, in fact, than some of the interior rooms attached to the *medianum* (Fig. 42, see also Fig. 38), suggesting that it was incorporated into the lived-in parts of the household, unlike the more utilitarian entry corridor immediately to the east. And since it has been placed within view of the social space of the house rather than outside of it, the staircase—and, by extension, the upper-floor spaces it represents—is more closely tied to the social environment of the ground floor.[144]

144. An idea echoed by Ellis 2000: 77.

When held up against each other, the differences in placement of the staircases in the House of the Graffito and the House of the Yellow Walls suggests that the architect had different socio-spatial expectations for the House of the Yellow Walls. Possibly it was believed more leasable to a single renter, who would therefore desire a more traditional internal staircase. There is some circumstantial evidence to support this idea. First of all, it is the house with the most windows and rooms facing the interior courtyard and none facing the street, which means that it would be the most protected from street noise. Its entrance is also the least visible to casual traffic, placed well back from the Via delle Volte Dipinte. In other words, it appears as if the designer of the Case a Giardino sought to make the House of the Yellow Walls the least Place-conflict-prone of the three larger houses in the northeast corner of the complex. So if a desire for security and privacy is truly characteristic of the Roman elite lifestyle (a value much asserted in scholarship, but less supported by evidence), then it is this house, and not the House of the Muses, which is the most elite-intended of the group.

Staircase placement at the southern end of the Case a Giardino's outer ring, which consists of a mixture of shops and residences, reflects a different organization of social space (Fig. 43). On the ground floor there are two units that look like traditional *medianum*-style apartments, each of which is outfitted with a small internal staircase. But

these stairs cannot possibly account for all of the second-floor square footage on this side of the outer ring. To accommodate the rest, we must also include the two external staircases accessed from the courtyard proper. But there are only two of them; thus each must have led either to very large upper-floor units, or to more than one residence. Bruce Frier's exhaustive study of the textual evidence for rental markets in Rome suggests that multiple rented rooms accessed by a single corridor was the norm, and evidence from Rome's Aracoeli *insula* seems to support the idea.[145] Packer has also identified similar arrangements elsewhere at Ostia.[146]

It is here that a block-wide evaluation of staircases begins to undermine the way we have previously understood staircases and their relationship to the division of architectural space in antiquity.

In Figure 44, staircases have been numbered and highlighted—internal stairs in blue, and external in red. When we view them as a whole, it becomes increasingly clear that we cannot use the ground-floor plan as an indicator of the organization of space on the upper floors. For illustration, I return to the northeast corner. Earlier in this chapter, we saw that the internal staircases of the Houses of the Graffito and of the Muses are oriented to facilitate separate renting of their upper floors. What I didn't discuss was the

145. Frier 1977: 34. and 34n8; On the Ara Coeli house: Blake and Bishop 1973: 82–83; Coarelli 2007: 41.
146. Packer 1971: 66ff.

fact that the upper floor attached to the internal staircase couldn't have covered the entire ground floor, because part of the upper floor had to be connected to the external staircase. Consider the staircase S2 (as labeled in Figure 44). If the internal staircases in the three houses communicated with the entire upper floor of each (as often presumed), then this staircase would lead nowhere. Since builders would have been unlikely to install such a stair, I can imagine two other interpretations. First, it could be an alternative access point to the upper-floor spaces in either the House of the Muses or of the Yellow Walls. This explanation isn't particularly satisfying, because there is no evidence elsewhere at Ostia for dual-entrance, upper-floor apartments.

A more straightforward explanation is that the stair led to an independent group of rooms that takes up some of the square footage on the upper floor that subtracted second-floor space from the Houses of the Muses and of the Yellow Walls. In other words, the ground-floor and upper-floor plans were not identical. But this simple idea, drawn naturally out of close attention to the placement of all the staircases in the block, asks us to radically revise our understanding of the Case a Giardino complex. Unless we allow for dual-access staircases to exist, a phenomenon for which there is no evidence elsewhere at Ostia, it is no longer possible to assume that the upper stories of the Case complex had

floor plans identical to their ground-floor counterparts.[147] I offer instead the idea that, in the area taken up by the House of the Muses and House of the Yellow Walls on the ground floor, there were three smaller suites of rooms on the upper floor. One was reached by the external stair S2, and the other two by the the internal stairs of the two houses. It would be helpful to compare the situation in this sector to that in the northwest corner, where an equally intriguing set of staircases and ground-floor plans calls the configuration of the upper story into question. Those rooms remain largely unexcavated, but hopefully the renovations recently made to the Garden Houses will open the way to further study of the complex.

Now let's turn to staircases elsewhere in the city. Although many of the other buildings in the city were less clearly built according to design principles in the modern understanding of that term, stairs in those buildings are nevertheless design-markers, and as such contain socio-spatial information within them.

Let's first compare two staircases in the area around the forum (Fig. 45). The first (S1 on Fig. 45), an undecorated stair attached to the Caseggiato dei Triclini, appears by all measures to be a traditional external staircase (Fig. 46). It fronts a street and provides

147. The idea of identical floor plans on every floor is often referred to in passing without much scrutiny, such as in DeLaine 2002 (but cf. DeLaine 1995 on the House of Jove and Ganymede); Gering 2002; Rose 2005.

upper-floor access separate from the Caseggiato's two internal staircases. In contrast, the stair on the western end of the forum portico seems to defy easy categorization (S2 on Fig. 45, 71–72). On the *Scavi di Ostia* plan, it looks like an external stair, only situated behind a wall, rendering it hidden from casual view and suggesting use as a service stair or for some other backstage activity (see Fig. 3 45, 71–72).

When viewed on the ground, the situation becomes less clear. As is clearly visible in Figure 71, the stair sits behind a massive threshold with the telltale signs that an equally massive door once sat upon its hinges here. This doorway would have significantly changed the way the stair was experienced by both users and non-users. It is impossible to know whether it was more regularly kept open or shut, but one may make some educated guesses about the nature of this vestibule and its staircase. Especially in the high-traffic forum area, such a large door would have called attention to itself, so it seems unlikely that the stair served a purely service-oriented function. Moreover, its size lends greater symbolic weight to its status—that is, whether it is open or closed. It is possible that the stair led to some kind of extension of the forum area, perhaps a second floor of the portico. In this way, the designer of the complex offloaded the visual status of the stair (hidden behind the wall of the portico) onto the visual status of the door itself.

More will be said on the subject in the following section on visual status, but for now I will address two conclusions that this stair's placement points to. First, the internal/external dichotomy is not powerful enough to address all of the existing scenarios in Ostia's complex urban environment. Staircases appear inside of houses and other discrete social spaces, of course, but city blocks at Ostia (unlike most of those in Pompeii) encompass more Places than just houses and shops. Some city block interiors are in fact just as open-access as the streets around them, as in the Caseggiato degli Aurighi. This means that even though the stairs serving these blocks are "internal" with respect to their location, their social value is aligned more closely with the external end of the dichotomy. And on the opposite end of the spectrum, the stair in the forum's western portico attests that even in the areas with the highest traffic, there might be parts of the environment to which the designers wanted to limit access.

Staircase placement also shows that builders at Ostia were taking the broader network of traffic, Places, and users surrounding their city blocks into account as they designed their structures. An ideal example of this phenomenon is at the so-called Baths of Neptune complex in the eastern half of the city.

This set of buildings was constructed in the mid-130s, but was not completed until after Hadrian's death. It comprises the Baths of Neptune and attached palaestra, some

residential blocks, and the Caserma dei Vigili, the barracks of Ostia's firefighting guild (Fig. 47). Through exhaustive masonry analysis Janet DeLaine has convincingly shown that, although it is not intuitively obvious, all of these buildings were constructed as part of a single building campaign and were executed by either a single building team or (more likely) a number of building teams under the direction of a head contractor.[148] When surveying the architecture of the Baths of Neptune complex, DeLaine spends very little time on the staircases or the upper-floor spaces they led to. Regarding the stairs in the complex, she writes only that:

> The baths and barracks were both public buildings, and presumably the property of the colony even if built under imperial initiative. Both these buildings included accommodation on upper floors reached from the street, and therefore independent of any public function, while the whole of the tabernae fronting the decumanus maximus with their upper floors must have been specifically designed for rent; the income presumably went to the colony.[149]

It is possible that the external stairs in the bath block did in fact lead to upper-floor residences. We already saw in chapter one that there is some textual evidence to support the idea that rooms above bath buildings were rented out, and Axel Gering has made a compelling argument for the widespread maximization of rentable space in second-century Ostia.[150] But it also appears that the designer of the Baths of Neptune complex

148. DeLaine 2002: 57.
149. DeLaine 2002: 62.
150. Gering 2002: 112.

systematically arranged the external stairs in the area to avoid the baths. Highlighting all of the staircases on the plan of the complex (Fig. 48) reveals a trend in their distribution: there appears to have been a concerted effort to situate staircases outside the traffic zones leading into the baths themselves.

The Baths of Neptune complex is wedged between the river and the Decumanus Maximus close to the Porta Romana. It is therefore overwhelmingly likely that the main direction of foot traffic coming into the baths was from the street to the south, a fact confirmed by a number of architectural details. First, all three potential entrances to the baths themselves lie in the southern half of the block. Second, there are no paved thoroughfares allowing east–west movement within Region II except for the Decumanus, which is also the widest street in the city. And finally, looking at the two corridors that link the palestra to the Via delle Corporazioni and the theater complex, the one closer to the Decumanus is substantially wider, suggesting an expectation for higher volume of traffic.[151] Moreover, there is no evidence for any kind of warehouse or docking apparatus on the

151. This is not accounting for the widest corridor running through the II.vi block, which extends the Via della Palestra straight into the east wall of the Piazzale delle Corporazioni building. It is unlikely that this was intended to be the main pedestrian through-way into the baths, since there are no entrances into the bath complex on north side of the block, and the bath's main service entrance is on the north side, suggesting it was not intended to be in full public view. It may be that this corridor was so much wider than the others to accommodate cart traffic to the Caseggiato delle Fornaci, the mill/bakery in the northern end of the II.vi block.

southern banks of the Tiber (just north of the complex), so it is unlikely that much traffic would be originating from there.[152]

Given this hypothetical traffic flow, it seems that most of the staircases in the complex were arranged to avoid the majority of the general bath traffic (Fig. 48). With one exception, every stair—not just in the bath block itself, but in the entire complex—sits to the north of all three bath entrances. It is hard to imagine that such a clear trend would have come about by chance. Indeed, it appears to be a decision on the part of the designer to redirect or filter different kinds of users within the complex. Since this was the largest bath of its time in the city, we can expect that at any given point in time the traffic heading to and moving within the bath and the adjacent palestra would have been significant. It is hard to imagine that whatever kinds of Place these stairs led to had an equivalently large user group, so the grounds for Place conflict are ripe. The designer seems to have made the conscious choice to limit the number of people who find themselves in a position to go up any of these stairs by ensuring that they would already have moved into the bath or the palestra before they would even have had a chance to pass a stairway. So it may very well be that these staircases did in fact lead to residential space. That would help to explain the desire to lessen the traffic flowing past their entryways—a strategy which would be

152. Pavolini 2006: 52–66.

counterproductive if the stairs led to shops, for example. At any rate, these stairs clearly signify lower-access environments than the bath building and adjacent palaestra.

But the question remains: why would these stairs need to be filtered out of the general traffic when those in the Case a Giardino, also believably residential staircases, do not? The answer might be simply that the stairs in the Garden Houses are already filtered to some degree by their location away from main thoroughfares. Cervi, for example, has observed that that the Case a Giardino complex consisted of "un 'sistema di filtri' ideato in modo da consentire una fruibilità mista, seppure estremamente 'vigilata' dell'interno del complesso, attutendo con l'intenso e caotico flusso circolatorio esterno."[153] The Baths of Neptune, in contrast, were the first large bath complex inside the Porta Romana with a palestra (but note that the smaller Terme dei Cisarii are just inside of the gate) and would have seen more passersby in a day by an order of magnitude than even the most frequented side street in Region III. It may be, then, that the Baths of Neptune complex's increased traffic load required more direct organization to limit traffic to the stairs.

There remains, however, the case of two staircases that do not participate in the filtering trend: the stairs S11 and S12 (labeled on Fig. 48). Stair S11 is relatively short, and thus seems most likely to lead to the upper floors associated with the shops of the Portico

153. Cervi 1998: 147–148.

di Nettuno, although that does not explain its placement. And while most other stairs in the complex are placed away from the primary bath route, S12 is in the thick of it. It sits adjacent to what John Clarke has identified as the main entrance to the baths on the grounds of its mosaic decorations, which would mean that many people would have walked by this staircase on the way to somewhere else. The ratio of users to non-users in the area would have been considerable. So how is it that the designer, whom we have hypothesized to have a vested interest in minimizing Place conflict, felt comfortable placing these staircases here?

First, we must consider the fact that anyone walking the streets of Ostia must surely have come into contact with dozens of doorways and staircases into which he was not authorized to cross, and somehow builders still felt comfortable placing those doorways and staircases in their "vulnerable" positions. So there was likely a larger structural rule at work to discourage willy-nilly penetration of unfamiliar doorways, and it may be that the designer of the Baths of Neptune complex was relying on this norm when deciding how to position this staircase. After all, we cannot know what the floor plan on the upper floor was like, and it may be that the arrangement of rooms above the bath necessitated that a staircase be placed somewhere along the southern end of the block, precisely along

the heaviest flow of traffic. The stair may also have led to some sort of open-access area, and was therefore considered appropriately placed.

Design-markers like these staircases are not going to respond to all of the questions about their own social environments. As we saw in Chapter One, they are in fact some of the least potent vehicles for conveying meaning and appropriate behavior in the built environment. So we can't rule out the presence in antiquity of some long-gone "KEEP OUT" sign posted clearly at the stairs' entrance, nullifying whatever potential Place conflict might have come about as a result of the stair's location. Nevertheless, there remains a simple explanation for S11 and S12's outlier status: that they led to different kinds of Place with larger user groups than the other stairs did. This way, there would not be as much opportunity for Place conflict as there would have been if it were an apartment, since the number of authorized users would be higher.

Indeed, as we will see shortly, Ostian building designers used all sorts of strategies to juxtapose high- and low-access staircases and entryways within the same block, and even within the same 10 feet.

Visual status

How a staircase looks is another key component of the way it affects the built environment and the way users evaluate it. In this section we will explore how the visual status of stairs at Ostia is an integral part of their design-marker nature. I have opted for the term "visual status" over alternatives (like "decorative scheme") in order to encompass a wider variety of attributes. How a stair is decorated and what materials its steps are made out of are two important aspects of visual status, to be sure, but a more fundamental component is whether the stair is visible at all. As phenomenological approaches to Roman cities have again become more popular, we have achieved a greater understanding of the extent and limits of visuality on Romans' social behaviors. It seems that, while non-visual cues were an important part of Placemaking and individual behavior within the built environment, visible presence was nonetheless a cornerstone of the Roman experience of the built environment.[154] So it should not come as too much of a surprise that builders at Ostia would have made premeditated choices on the visual effect their stairs would have within their structure. As in the last section, let us first turn to the paradigmatic Garden Houses before moving beyond them to the other staircases in the city.

154. Ankerl 1981: 208; Favro 1996; Ingold 2000: 192ff; Anderson 2011: 87; Betts 2011: 118.

It may be obvious to say, but visibility is the most important part of visual status. After all, a staircase that has been placed in a visible location is likely intended to be used more than one placed in a less visible one. Thus, visual access is closely connected to placement, a fact which is encoded into the internal–external dichotomy. Internal staircases, it is said, are necessarily out of view. But we have seen that, between the two poles of internal and external, there exist many intermediate statuses for staircases. And while visibility is, in one sense, binary (a stair is either in view or out of view), designers can still manipulate it to express different social environments. This is due to placement, of course, but also to stairs' inherent directionality.

The large staircase in the House of the Muses is, as we have already seen, unlike the traditional internal staircase, being instead situated very close to the house's entrance. And yet, it would have been possible to orient the staircase in the other direction, so that the rise began on the far end of the entry corridor, rather than in full view of the street (see Fig. 49). This minor structural change (no walls or rooms need to be rearranged on the ground floor) would have dramatically shifted the experience of the staircase. Instead of being in full view of passersby, it would have been oriented toward the center of the house, completely hidden to the world outside. And so it is even harder to avoid the

conclusion that the designer of the House of the Muses deliberately oriented this stair to the outside world.

A similar phenomenon is at work in the "officina" III.ix.10 on the north side of the outer ring (Fig. 50). Like many of the rooms in the Case a Giardino outside of the decorated apartments, this space has received almost no attention in scholarship, and moreover it seems to have gone completely unmentioned in the official *Giornali di Scavo*—so the following interpretation is necessarily impressionistic and based solely on the reconstructed remains of the building. This space features two ground-floor entrances: one facing the central apartments, and another placed along the corridor linking the "private street" and the central courtyard. Because of its size, the entrance facing the courtyard might seem to be the main one, with the stair being placed near the secondary entrance along the corridor. But because that corridor connects to a movement path extending through the III.x block and reaching all the way up to the Via della Foce, the traffic that would pass right by the stair probably exceeded the the traffic by the "main" entrance (Fig. 51). Thus, depending on whether the door in front of the stair was open or closed (see the end of this section for a longer discussion of doors and their effects), the stair in this space was either fully in or fully out of view.

In fact, of the fifteen internal staircases in the Case complex, only four are out of view. Two of these, in the Houses of the Graffito and of the Yellow Walls, we have already discussed in the section on staircase placement. Placed very close to their houses' respective entrances, however, they are not clear-cut examples of the traditional internal stair in the fashion of the Samnite House at Herculaneum. The other two out-of-view stairs do look more like traditional internal staircases. They are housed in the northwest corner (III.ix.8) and along the south side (III.ix.3) of the outer ring (S13 and S8, respectively, in Fig. 44). Unfortunately, III.ix.8 remains largely unexacavated,[155] and III.ix.3 is poorly preserved and received almost no attention from the 1938–42 excavation team, so little detail can be added to the picture presented by the published plans. But all available evidence points to those stairs being present in the complex, and their placement suggests a desire to keep them separate from non-users of their respective buildings.

A much more straightforward aspect of visual status manipulation by Ostian designers is their decoration. Beyond the decision to fashion stairs out of wood or brick (faced with stone or not), it is important to remember that staircases connect to doorways in the built environment. As such, their entrances can receive the same visual treatments

155. Some small exploratory trenches were sunk during a "restoration" project in the middle of the 1960s, overseen by F. Munerol. The goal of the project seems to have been to figure out the interior architecture of the western half of the outer ring, but the notes have very little to say about the staircases. Munerol's notes from this project are preserved in the Ostia archive (see also Cervi 1998, where they are cited as an "unpublished manuscript").

as any other doorway. Figure 52, for example, shows a typical street view at Ostia, where a number of doorways along the street are decorated with white travertine blocks. Van der Meer and Stevens investigated these blocks early in the 21st century, and Bakker has recently re-evaluated their work, concluding that there is no systematic use of travertine across the city.[156] But it is nonetheless clear that in many (if not most) contexts the stone markers distinguish some doorways from others.

The idea that a stair and a neighboring doorway might need to be distinguished arises from two influences. We saw at the beginning of this chapter that paired entrances are a necessary by-product of the construction of scissors-type staircases. Because one of the paired entrances holds a staircase at ground level and the other does not, they likely lead to different environments, and therefore need to be differentiated. Yet while it is the practicalities of the architecture that create the need for distinguishing between paired entryways, it is the specific use contexts in a given building that influence the designer's choice over which receives visual treatment. With that in mind, I turn to some different contexts in order to see how staircases are handled in the built environment.

156. van der Meer and Stevens 2000; van der Meer 2002. Bakker published his study on the Ostia website, of which he is also the webmaster: http://ostia-antica.org/dict/topics/travertine/travertine.htm (accessed August 2014).

Consider the street view in Figure 53, taken from the eastern facade behind the Forum Baths (I.xii.6). Here, travertine blocks call attention to one particular doorway. But when the viewer turns to face the row of doorways head-on (Fig. 54), we can see that it is the *staircase* that is being singled out. Now, if we persist in regarding this external staircase as the access point to one or more upper-floor apartments, it is difficult to explain why this would be highlighted to passersby. After all, the user group for any given apartment is small compared to the number of people walking the streets of the city, and all of its authorized users should already know how to get there. So why call attention to a private entrance? But suppose that this stair led to some sort of non-residential context like a shop or other business, and that the travertine blocks helped to mark out its access value to street traffic. Such an interpretation would make a great deal of sense in such close proximity to the high-traffic Forum Baths. And it might explain why the marked entrance's threshold is significantly more worn, and thus more heavily used, than the others shown in Figures 53–54.[157]

Or consider a well-decorated doorway near the Baths of Mithras (I.xvii.2, Fig. 55). As far as can be determined, this doorway was not actually connected to the bath building, but in fact allowed for through movement between the streets on either side of the bath

157. Given the heavily reconstructed state of Ostia, it is impossible to know conclusively that this threshold belonged to this doorway in antiquity, but does nevertheless fit the picture.

block. About a hundred meters closer to the river on the same street sit another pair of staircases (Fig. 56). Here one of the stairs displays a similar stone molding around the doorframe, while the other is undecorated. With these two stairs so clearly juxtaposed—and with the marked stair matching so closely an open-access throughway in the same building on the same street—it is impossible to avoid the conclusion that these two stairs lead to different kinds of social environment.

One straightforward explanation for stone decorations on doorways is that they are part of an ornamentation strategy designed to elevate the status of the buildings and their owners. This seems like a particularly shrewd technique for Ostia, where so many of the residences (housing being a key means for status display in the Roman world) only have a doorway and a staircase with which to make their statement. It is true that some stairs at Ostia are decorated in a manner that conveys status, either through decoration or through extending the stairway into the street (for example, in Fig. 57). One late resident of Ostia saw fit to adorn his front door with a projecting aedicular façade, as if to lay claim to the street. (Fig. 58, column bases visible on the left).

But not every instance of stone or brickwork decoration at Ostia is aimed at ornamentation. Indeed, many marked staircases are decorated only by the kind of small rectangular travertine blocks that pervade second-century Ostia. These blocks show up in

so many different contexts that it is impossible to regard them as any kind of status marker. But, as Van der Meer, Stevens, Bakker, and now I myself argue, they must be taken as some kind of visual reference.[158]

Nor is the practice of visually marking stairs unique to external stairs. The Caseggiato dei Triclini has two staircases that are clearly distinguished (Figs. 59–60). The first, located near the entrance in the northwest corner, is embellished with stone steps and set adjacent to a large stone doorjamb.[159] In contrast, the second sits at the back of the building along a secondary corridor and is less unadorned. The difference in decoration thus correlates with the difference in placement. The staircase near the main entrance to the complex was simply more likely to be seen by more people—situated as it is within the famous courtyard of masonry triclinia—than the stair in the back of the building.

Or consider the interior of the so-called Caseggiato del Larario, widely believed to be a kind of indoor marketplace (Figs. 61–63). The ground floor is made up of uniform cells, with each doorway flanked by small travertine blocks. Interestingly, remains of stair

158. There is solid (if circumstantial) evidence to suggest that exterior walls of Ostia were not plastered, and that these blocks would have been visible: many buildings carefully selected bricks for matching color on the exterior of their buildings, but not on their interiors (see DeLaine 2002); they serve no structural function, making their presence meaningless if they could not have been seen (see van der Meer and Stevens 2000); and finally, they appear throughout the city in similar contexts, and sometimes in evocative patterns. It is difficult to understand how so many builders at Ostia could have seen fit to use them if none would have been visible at the end of construction.

159. Recall here Packer's assertion (1971, p. 30) that only the "easily visible" exterior staircases in the *wealthiest* buildings at Ostia had stone stairs; what does that say about this interior stair in a private organization's meeting hall?

supports in many of the cells points to each stall having its own small stair leading to a mezzanine level, although it is impossible to tell whether this was for storage, living space, or both. But the building also has a larger internal staircase separate from the ground floor stalls, and although it is also decorated with travertine blocks, it is in a clearly different pattern than the doorways of the cells (see Fig. 63). Continuing the line of reasoning developed in this chapter, the difference in visual status between the doorways within the Caseggiato del Larario might reflect differences in the kinds of Place these doors would lead to. Since each individual *taberna* appears to have its own staircase, we can surmise that the independent staircase does not lead to anything associated with the ground-floor shops. Nor does it necessarily lead to more shops, since in that scenario we might expect an identical visual motif. This sort of ambiguity might help explain why, at some point later in the building's life, the staircase was blocked up. Indeed, based on the current state of the remains it is very difficult to see how this stair and the external staircase (S2 in Fig. 61) interacted, since they appear to lead to roughly the same location. It is possible, then, that shifting circumstances led to a transformation of the upper floors of this building.

But stairs are not always defined by a marked entryway. In fact, there are an equal if not greater number of scenarios in the Ostian built environment where the stairs are left conspicuously *unmarked* in close proximity to other doorways and corridors in a complex.

Here we can take a pair of doorways at the Insula of the Paintings (I.iv.1–3, Figs. 64–66) as an example. The doorway on the left, marked by monumentalizing brickwork pilasters and pediment, leads to a garden area behind the houses in the block. In contrast, the unmarked door on the right holds a set of stairs that, according to DeLaine, lead to rooms 124, 128, and 135 on the plan in Figure 64.[160] If these constituted an upper-floor residence, the stark contrast in the marked and unmarked doorways on the ground floor was used to highlight the different access values between the two zones.

There is some evidence that a much more systematic example of the same phenomenon is at work in the courtyard of the Garden Houses. Each public entry into the courtyard is marked by a vaulted corridor, at the springers of which sit distinctively cut travertine blocks (Figs. 67–70).[161] This decoration distinguishes the corridors as separate from the other entryways in the courtyard façade, pointing to a disparity in social value. In the northeast corner of the courtyard, for example, the undecorated doorways representing a staircase and the passage to its understair cavity—two doorways which, regardless of the spaces to which they led, must necessarily have had smaller user groups and lower expected access levels than the courtyard—contrast sharply with the stone-

160. DeLaine 1995: 84–86.

161. On the south end of the courtyard, largely unreconstructed, the blocks sit in the grass in front of their doorways.

marked corridor beside them. This same pattern repeats itself throughout the courtyard, where the high-access throughways contrast with lower-access doorways. The motif announces itself on the exterior of the complex also, on the monumentalized northern and eastern entrances through which most traffic would have reached the courtyard.

Chapter summary

Builders at Ostia seem to have put more thought into staircases than we might have otherwise thought. Vitruvius has remarkably little to say about them.[162] Yet in almost every context, stairs are deployed in such a way that they suggest expectations for the social division of space that, even if surprising, are perfectly in keeping with our understanding of Roman city life. If design-markers are the subset of meaning-conveying elements of the built environment over which architects have control, then in the case of staircases, that control is exerted by manipulating two main characteristics: placement and visual status. Further, observing the differences in their placement and status across the city, it is possible to draw a handful of conclusions about how Ostian builders expected users to interact with stairs in a variety of contexts.

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162. Vitruvius makes explicit mention of stairs or staircases only twice: once (*De Arch.* 6.6.6) explaining that stairwells need lots of light to avoid people running into each other, and again (*De Arch* 9.pref) when he mentions that the Pythagorean theorem is an excellent tool for calibrating the incline of staircases in buildings.

First, the traditional model for describing stairs—the internal/external dichotomy—is too rigid. As far as it goes, the dichotomy makes sense, given that the qualities "internal" and "external" are relative terms that presuppose a specific location (almost always a residence) from which their status is established. But Ostian city blocks are made up of a greater number and a greater variety of individual units than their counterparts at Pompeii or Herculaneum, and some of them blur the interface between inside and out.

Second, staircase placement shows us that we do not understand the upper stories of Ostian buildings as well as we would like. Focusing on individual apartments or individual units within a block has concealed the fact that, in many blocks, there are too many stairs to allow for the upper floors to be simple replicas of the ground-floor plan. Clearly the upper floors hosted a greater number of smaller units than the ground floor; we should therefore carefully consider whether there were even more users of a given block than previously imagined. Moreover, even the best-decorated apartments, those most closely aligned with our traditional understanding of the Roman elite lifestyle, are oriented to allow for house sharing. The Garden Houses, for example, only have two traditional out-of-view, internal staircases in the entire complex, and neither appears in the biggest or best apartments. Indeed, design-markers underscore the point that anyone

living in Ostia could expect to come into close contact with more people across classes on a daily basis than we are used to in the modern world.[163]

With so many spaces accessible from a shared architectural footprint on the ground floor, it is fitting that builders at Ostia saw fit to offer clear visual distinctions between staircases and other elements of passage architecture within a block. Marked and unmarked entrances are particularly important, since many stairs in the city are built to require paired corridors. More interesting, however, is that many of these distinctions are signified by the placement of decorative stone blocks, which in other contexts might be construed as purely decorative.

The sheer number of instances of visually contrasting doorways reveals the emphasis Roman builders placed on visuality in the experience of the built environment. While users' experience was shaped by all five senses, architects had to work with a more restricted vocabulary. And yet placement is an equally important part of that vocabulary. The Baths of Neptune reveal a closely followed placement strategy for staircases, keeping them out of the expected high-volume flow of traffic into the baths. So at least in this case, builders saw fit not to rely on visual cues, and instead to physically organize the block to

163. Although I am not the first person to claim this, evidence-based arguments for it are surprisingly rare. Ignoring those works that only cite Roman poets, to my knowledge only Wallace-Hadrill 1994 and Frier 1977 make a concerted effort to explore the social ramifications of widespread multiple occupancy across classes. Meiggs (1973, p. 142) refers to the idea in passing, pointing out that "no district that can reasonably be called a slum has yet been found."

ward against Place conflict.[164] Such a strategy might make the most sense for a place like a bath building, where the highest volume and widest variety of traffic—especially of outsiders entering Ostia from the Via Romana—could be expected. But even here one stair bucks the trend, and is placed squarely in the middle of the flow. This kind of discrepancy asks us to reconsider our assumptions about what staircases represent—whether they necessarily lead to residential space—and consider whether new or different kinds of Place were being diverted to the upper floors.

164. Carlson *et al.* (2010, p. 288) reinforce this idea through modern observational studies. They write that "It is advantageous to have unimpeded lines of sight connecting entrance spaces and other key central spaces (e.g., atria) to the means of vertical circulation: stairs, elevators, and escalators. This relates to the compatibility between the building and the strategies that a user may adopt for navigation." In other words, by keeping the staircases out of view, the designer of the Baths of Neptune complex has ensured that everyday users of the baths do not ever encounter the possibility of using them.

Chapter 4: Windows and Other Visual Connections

In the last chapter, we saw staircases working as design-markers at Ostia—that is, as evidence of designers planning for different uses within their buildings. In Chapter Four we will turn to another design-marker: windows. Ostia is one of the few ancient cities preserved well enough to allow for the study of windows. As I will show over the course of the chapter, windows can serve as socio-spatial icons in their own right, changing the experience of the interior (or indeed, exterior) of a building. But much as staircases can be situated along different vectors of alignment (in-view/out-of-view, internal/external), windows are deployed differently according to different needs. Height, size, shape, and dressing are all facets of the social force windows exert upon their built environment. They vary from broad bay windows that allow panoramic views, to narrow loopholes placed high on the wall. So while the last chapter focused on whether (and how) stairs were visible to different user groups, with windows we will move beyond those questions to include the issue of how Places and their users themselves were made visible.

Visual access is a matter of longstanding importance for Roman architectural historians. Indeed, it is well established that many Roman social behaviors and institutions relied upon manipulating visual access, from triumphal processions and civic feasts to the social hierarchy of spaces within the elite *domus* at Pompeii and elsewhere. The evidence

from Ostia shows that architects there understood equally well the influence of visual access on the experience of the built environment. We will therefore begin the chapter exploring the broader subject of visual access and visual connections.

Visual access and visual connections

That Roman architects and their patrons were preoccupied by the manipulation of sight lines in their building projects is well known. Although the past two decades have seen an increasing drive to get out from under the "hegemony of the visual" in reconstructing the ancient environment (on which more below), vision remains at the heart of Classical scholarship.[165] Roman cultural and art historians have been pointing out the layers of meaning added by visual connections between monumental buildings for over a century. The firewall in the Forum of Augustus, for example, has long been interpreted as not only a utilitarian defensive wall, but also a means of visually segregating the Forum from the poor Suburra neighborhood behind it.[166]

Beginning in the 1960s, the architect Kevin Lynch's influential idea of the "urban image" led to an expanded focus on how visual access affects city-dwellers' daily

165. For example, Betts 2011; Tim Ingold (2000) in particular is emphatic in his rejection of visual metaphors—like "reading" a space or referring to "mental maps"—in environmental analysis.

166. Though the wall does not block physical access. Zanker 1988: 155; Favro 1996: 175; Coarelli 2007: 109. The idea goes back at least as far as Platner-Ashby and the sources it cites.

experience of the city as a whole. Over decades of study, he observed that people "had a relatively coherent and detailed mental image of their city, which had been created in an interaction between self and place, and that this image was […] essential to their actual function."[167] This idea has been frequently applied to the Roman world. Diane Favro's hypothetical walk through the city in *The Urban Image of Augustan Rome*, for example, relies heavily on creating a meaningful narrative out of the visual availability of specific monumental buildings. She writes that "visitors [to a city] were forced to conceptualize the placement of urban features and themselves in a relational manner based upon the location of monuments or other notable urban features."[168] An oft-quoted passage in Terence (*Adelphoi* 573–85) has one character give directions to a far-off section of the city to another character, based solely on visible cues. In the same vein, Sander Goldberg has persuasively suggested that Plautine comedies were presented in specifically selected locations (and therefore in view of specific landmarks) in the city, to give their characters' topographical allusions extra meaning.[169]

But beyond the polyvalent topography of monumental buildings in an imperial capital like Rome, visual connections play a role in quotidian contexts also. In this respect

167. Lynch 1990: 248.
168. Favro 1996: 5.
169. Goldberg 1998.

too, Lynch represents an early voice. He writes that "access is a matter of psychological, as well as physical, connection. An open space must be seen to be reached, which is very much a matter of design. Moreover, access can by denied by social rather than physical barriers."[170] Art historians, with their keen focus on wall paintings, were among the first to adapt Lynch's attitudes to Roman daily life. John Clarke bases his book *The Houses of Roman Italy* in part on the concept of a "sequence of architecturally framed planes" that provide controlled visual but "physically unattainable" access to different social environments within the Roman house.[171] Bettina Bergmann has shown how Pompeian wall paintings are arranged into narratives based on their visual availability as one moves through the structured progression of rooms.[172] The social historian Jens-Arne Dickmann expresses a similar sentiment, writing that "the elite Roman house can be understood as a series of different rooms and living spaces of distinct and carefully planned outer visibility."[173] Nor does such analysis end with the home. Visual connections have also enjoyed close scrutiny at the level of the city.

William MacDonald's landmark study of *urban armatures*, or the networks of streets, open spaces, and monuments that constitute a city's unique architectural identity,

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170. Lynch 1990: 401.
171. Clarke 1991: 4.
172. Bergmann 1994.
173. Dickmann 2010: 55.

is predicated on visual connections. After analyzing cities throughout the Roman Mediterranean, he concluded that the individual units of the armature are "bound together visually," creating a city's unique signature.[174] Just as Lynch's urban image is the key means by which people interacted with their city, for MacDonald the armature—and therefore the visual experience of moving through a city—is the defining characteristic of Roman urbanism. The emphasis on visuality has also persisted in the more recent quantitative turn. Proponents of Space Syntax employ *isovists*—representations of the aggregate visual availability of a given area of an environment when viewed from every other area (for an example, see Fig. 73).[175] Isovists create a visual heat map unique to every building, and provide a tool for quick reference to compare different buildings' visual access.

Because of their popularity as *comparanda* for Pompeii and Herculaneum, visual access in Ostian apartments and city blocks has enjoyed scholarly attention for some time. But it has only been recently, with the publication of Hannah Stöger's *Rethinking Ostia*, that Ostia's main strength—its large, contiguous area of complex city blocks—has been

174. MacDonald 1988: 3. It is interesting to note that MacDonald lists Lynch in his bibliography but never cites him explicitly.

175. Montello 2007: 4–5. See also Stöger 2011: 192ff.

subjected to similar analysis.[176] This may be influenced by the ever-present complication of Ostia's verticality. It is possible to estimate building height based on the depth of foundations and wall thickness, but how buildings were roofed at Ostia is often an open question. And since few walls at Ostia can be reconstructed to their original height, it can be difficult to reconstruct the rooflines or their consequent visual qualities. Even Gismondi's famous reconstructions tend to treat their subjects in isolation rather than embedded within an urban landscape (e.g., Fig. 74).

Ostia's Region III was cleared relatively quickly and was not very well documented, but it was thankfully excavated with an eye to immediate and systematic reconstruction. It is therefore possible, in spite of the drawbacks created by the initial excavation, to make some significant observations about visual connections between buildings in the area. As I will show below, even designers of everyday, non-residential architecture took care to arrange visual connections in meaningful ways. We can see that visual connections were a design consideration by comparing two neighboring blocks sitting between the Via della Foce and the Cardo degli Aurighi: The Triangle Block (III.xvii) and the Aurighi Building (III.x).

176. Stöger's work (2011, p. 220ff.) has begun to address visual connections across the city, although she focuses on visual availability across Ostia's streets rather than connections between different buildings.

Recall from the survey in Chapter Two that the Aurighi Building's original phase is defined by an open plan arranged around a North–South passageway that extends almost the entire length of the block (labeled C5 in Fig. 75). As I explained earlier, the placement of this corridor may reflect the designer's desire to facilitate movement through the block, since market spaces rely on a steady flow of traffic. Moreover, its placement in this precise location roughly aligns it with a corridor leading to the Garden Houses, so people exiting Corridor 5 from the Aurighi building would be presented with a view of the traffic moving into and out of the so-called private street (Fig. 76). Since the Garden Houses predate the construction of the Aurighi complex, it seems likely that the corridor skeleton of the latter's plan probably represents a conscious attempt on the part of the designer to establish a visual connection between his building and the traffic communicating with the courtyard of the Garden Houses. At the same time, the sightline created by C5 meant that anyone walking along the Cardo degli Aurighi could see deep into the Aurighi Building. Modern observational studies have shown that such intervisibility is a prime facilitator of wayfinding, especially as the complexity of a built environment increases over time.[177] But it is also the foundation on which Places are built.

177. Carlson *et al.* 2010: 288.

One of the primary influences on an individual's behavior in any given environment is the opportunity to view the behavior of other people in the environment.[178] The visual link between the Aurighi's main artery and the "private street" of the Garden Houses encouraged people moving along that axis to continue into the other block by presenting them with the image of others doing so. The courtyard of the Garden House complex was, after all, furnished with shops. It therefore represented a preexisting source of consumer traffic that the designer of the Aurighi building sought to exploit. And since the only other North–South street in the immediate area (the Via di Annio) did not offer a direct path between the Via della Foce and Cardo degli Aurighi thanks to three decades of haphazard building accumulation,[179] a visual link between the private street and Corridor 5 makes a great deal of sense.

The Aurighi complex is also connected to the rest of the city to the east. Its southern façade sits at a divergence of path of the Cardo degli Aurighi, which seems to have caused some havoc with the orientation of property boundaries facing the street (Fig. 77). It is not entirely clear why this street bends here, but the issue may be chronological. The oldest building on the street is the western section of the streetfront shops (III.ix.25–26), dated

178. In modern theory, see: Rapoport 1982: 56; Giddens 1984: 71; Lynch 1990: 401. And for Classics in particular: Clarke 1991: 4; Wallace-Hadrill 1994: 44; DeLaine 2004: 157–158; Dickmann 2010: 71.

179. Blake and Bishop 1973: 182ff.

by brickstamps to the Trajanic period.[180] The orientation maintained by the rest of the buildings on the street, all of which were built during the building boom of the early second century, runs more closely perpendicular to the western Decumanus. The street's change in direction might therefore reflect the need to accommodate earlier structures in an area that was largely rebuilt in the second century, which might also explain the irregular street levels along the western stretch of the road, which levels out completely on the east side of the bend (Figs. 78–80). A better knowledge of the pre-Trajanic phase of the area, which has seen no systematic excavation, might clarify the timeline.[181]

Nonetheless, the street's shift forced a number of awkward choices on both sides of the Cardo degli Aurighi. We have already seen the erratic northwest corner of the Garden Houses' outer ring, and on north side of the street, the street's change in direction resulted in a open cavity where the Aurighi building and the shops of the III.ii block meet (Fig. 79). Yet whatever awkwardness this alignment creates in plan, it redeems in the straight line of vision it establishes between the façade of the Aurighi Building and the intersection of the Cardo degli Aurighi and the Decumanus some 100 meters to the east

180. Calza 1953: 223.

181. There is clear evidence for a large scale restructuring of the area in the Trajanic period, but that building was subsequently abandoned until the late 120s (see Cervi 1998: 154.). According to Bakker's website, a trench was sunk in the NW corner of the complex in 2006, in which a substantial burn layer was discovered, which may explain the Trajanic reorganization (http://ostia-antica.org/regio3/9/9.htm, accessed September 17th, 2015).

(Fig. 81). The III.x complex is practically the only building facing the Cardo that has the familiar travertine blocks set into its entryways, and they are set in pairs at two different levels (Fig. 82). This ensures that, despite the distance and the variations in street level across the area, the travertine blocks would be clearly visible from the intersection with the Cardo to the East. Moreover, the III.x block was taller than every other building between it and the Forum. The evidence therefore points to the building's orientation as a means for ensuring that it could act as a topographical centerpiece of the western half of the city.

To illustrate this point I contrast the high visual availability of the Aurighi building with the Triangle Block (III.xvii) block to its west. It is easy to imagine that this block was more important than the Aurighi building, given that it housed the cult center for one of the second century CE's most important deities.[182] And yet the entire block is arranged in such a way as to limit visual availability. It is arranged around a central street, meaning most of the block's component units could only be accessed by first stepping off the Via della Foce.[183]

Especially when faced with the relatively porous buildings and street network in the area, the Triangle Block's insularity is striking. Indeed, it led Guido Calza to identify the

182. *ANRW* vol. 17.4, p. 1801–2.

183. The throughway between the *horreum* and the rest of the street was only opened up later.

block as part of an "eastern quarter" of the city, purposefully sequestering itself from the rest of the urban network in order to create a sort of mini-neighborhood. His interpretation probably rests too heavily upon the presence of the temple and *collegium* of Serapis within the compound, but Calza's interpretation has gained considerable favor.[184] It does, however, underscore the divergence from the Aurighi building's extreme visual availability. Whereas Corridor 5 establishes a visual connection between the interior of the Aurighi building, the street fronting it, and the "private street" of the Garden Houses, the interior street of the Triangle Block is only accessible—physically and visually—from its intersection with the Via della Foce. Even within the block itself, the component units are not visually connected. Each has an entrance perpendicular to the central street, and its constituent rooms are only partially visible from it. It is impossible for someone standing in the Caseggiato di Bacco e Arianna to see into the Baths, and even the relatively open portico to the south of the Serapeum (which would later be blocked up to house a Mithraeum) isn't visible at all from the entrance to the block on the Via della Foce.

By comparison, the III.x block offers long sight lines both along both the north-south and east-west axes. The central room of the Bath of the Seven Sages would therefore be visible even from the southern loggia along the Cardo degli Aurighi. Entrances on all four

184. Although see Mols 2007 for a summary of the arguments, and a convincing refutation of them.

sides and the low number of solid walls in the interior show that the design was intended to facilitate free movement through the block to the greatest extent possible. The Aurighi building therefore served as a connection point between almost every other building fronting either the Via della Foce or the Cardo degli Aurighi in the west half of the city. We can hold up the plan of the Triangle Block, then, as an example of architectural design aimed at fulfilling very different socio-spatial needs than the Aurighi building. Those different needs are reflected in the way it handles its visual connections and intervisibility.

Even if its potential has not yet been thoroughly plumbed at Ostia, the control of sight lines within buildings and between major topographical features is a familiar feature in Roman archaeology. Even at Ostia, where the presence of the central government's prime movers was less keenly felt than at Rome, evidence points toward designers manipulating intervisibility between spaces. But windows, which the poetry of Catullus, Ovid, and Juvenal suggest were important determinants of visibility and of Place experience, are hardly ever addressed by Roman archaeologists or spatial analysts. Jean-Pierre Adam's magisterial *La Construction Romaine*, for example, mentions windows on a single page, and even then adduces examples only from Pompeii and Herculaneum.[185] Where windows are studied, they are more frequently analyzed as construction features

185. Adam 1994: 305.

rather than as elements of a social environment.[186] And yet in a very real sense, the Ostian built environment is defined by its windows. The prevalence of windows along the web of cobbled streets make the experience of walking the city unique in the Roman world. No other excavated Mediterranean city possesses windows in such quantity or distribution. With the exception of the original publications in the early 20th century and the typologies developed by Packer's 1971 doctoral thesis—where he calls them "the most characteristic [feature] of Ostian streets"[187]—windows are barely mentioned, even when they have a direct bearing on the study at hand.

To address this deficiency, let me begin with the rooms in the House of the Muses that abut the so-called private street. These rooms are some of the best-decorated and furthest removed from the entrance and each has a window (see labeled plan, Fig. 84). John Clarke identifies them as the primary presentation spaces for the House's wealthy renter/owner. Of Room 8 in particular, he writes that:

> Falletti Maj suggested that this suite was for the *dominus*, but its location and separate service corridor indicate that it was intended for intimate receptions, for either the man or the woman of the house. It compares closely in position and disposition with the private suite of the House of the Vettii […]."[188]

186. For example, Packer 1971; Blake and Bishop 1973; Taylor 2003. Clarke 1991, on the other hand, does sporadically address the effect windows had on experience (as at p. 293), but they did not seem important enough to include in the index.

187. Packer 1971: 6.

188. Clarke 1991: 274–278.

That conclusion agrees with the received wisdom of Roman house structures, equating deep access into a home with status and intimacy with the owner.[189] And yet this room has the window with the lowest sill in the entire Case a Giardino complex, sitting around 1.3m from the floor (Fig. 85). The potential for direct visual access into the room from the street suggests a more complicated scenario for its use than the stereotypical patron's *convivium*. If the windows of the Insula delle Muse provided a display of the interior, then the designer anticipated the presence of an audience for that display. The entire architectural environment therefore asks us to question how closely the social order of Ostian apartments compares with Pompeian *domus*, and whether any room in the House of the Muses was truly intended for "intimate receptions" in a "private suite" of rooms. We know from the epigraphic record that being seen to dine was a significant part of the public life of municipal elite in Italy.[190] It may be that Room 8 was planned to accommodate these kinds of deliberately visible activities than its distance from the entrance might otherwise suggest.

Most of the other windows in the Garden Houses were placed higher on the wall. The ground-floor windows in the central apartments, for example, begin roughly 1.5m off the ground (Fig. 86), and the windows at the western end of the private street are almost

189. Wallace-Hadrill 1994: 53–57; Riggsby 1997: 42.

190. Donahue 2004; Moreover many other elite behaviors were under careful scrutiny (See, e.g., O'Sullivan 2011).

1.9m high (Fig. 87). Such heights may allow tall people to peer in, but it does suggest that intervisibility was not the designer's expectation. In his survey of windows across the city, Packer notes that most windows in the city are placed high on the wall "for reasons of safety," but he does not elaborate.[191] Elaboration is necessary because there is a sort of ambiguity in the concept of safety when dealing with windows. A window can be considered safe not only if it is impassable, but also if it limits visibility from the outside. The ambiguity of window security highlights the two-way influence windows have on the built environment. They affect the experience of the interior by changing how much light enters a room and how much of the outside world is visible. At the same time, they change the character of the exterior of the building, not only through controlling visual penetrability, but also by creating a specific visual effect based on their form and decoration.

Window construction and design

Windows at Ostia were built in a manner similar to doorways, and Packer uses the same typology for both, categorizing them according to the construction of their lintel. Many had flat brickwork lintels (or flat arches), while others were arcuated. Windows at

191. Packer 1971: 26.

Ostia occasionally bore false arches as well as a wooden beam, a feature much more common in doorways (see Fig. 88 for example).[192] A fourth type of window, the *loophole*, is also featured in a handful of buildings throughout the city. These are very narrow (about 20cm across), usually with *bipedales* serving as a lintel. Loopholes are most often placed well above head height, making them somewhat reminiscent of the windows in a military fortification wall. Because I address them length later on in the chapter, I will refrain from further discussion here.

In almost every building in the city, windows appear in groupings of two or three, termed *bifora* and *trifora* in the scholarship. These groups seem to have been stylistic as much as practical, since they are deployed equally to serve multiple rooms along the same façade as well as to serve the same room.[193] If the buildings preserved into the upper stories are representative of the general trend, window groupings were repeated on each floor, creating repeated rows along a building's façade in the manner of today's high-rises. Ostian windows varied in size by half a square meter or more, generally ranging from 1.5 to 2 meters in height and just under a meter to 1.5 meters in width.[194] They differed even more dramatically in terms of their placement on the wall. Some windows were placed

192. Packer 1971: 24ff.
193. Packer 1971: 26–27.
194. Packer 1971: 26.

more than 2.5 meters above the street, while others didn't rise much more than one meter from the floor. It was possible, then, for neighboring buildings to have radically divergent façades based entirely on the shape and disposition of their windows.

The question of how windows at Ostia were dressed—whether glazed with glass or an alternative like mica, or fitted with something more permeable such as wooden shutters—remains a vexed one. Although there is no outright debate on the matter, a number of scholars have expressed strong opinions. James Packer, for example, takes a firm stance on the use of semi-transparent panes of mica:

> Traces in the internal stucco of several Ostian buildings clearly indicate that each window had a wooden sash which probably held panes of the selinite of mica of which scanty remains have been found. The fact that such fragments are not abundant has led some scholars to suppose that windows were commonly closed with double wooden shutters, of a type still found in modern Italian houses. [...] Yet the absence of window panes in a town which has been gradually abandoned and which was, until its interment in the rising mass of debris from its own buildings, continually exposed to the elements, is hardly surprising. The glass in the windows of abandoned buildings in modern towns rapidly disappears, and the structures of Ostia were exposed untended for hundreds of years. In fact, the number, size and distribution of windows in luxurious apartments like those along the Via dei Dipinti, the Via della Fortuna or in the Case a Giardino suggests that these windows were intended to provide, during the day, a continuous supply of light and air. The windows could only have achieved this purpose if they were equipped for the most part with transparent panes of mica or selinite.[195]

Packer is correct in his observation that light and air were two of the primary concerns governing the deployment of windows at Ostia,[196] but his overall argument is nonsensical.

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195. Packer 1971: 27.

196. Echoed by Meiggs 1973: 239. and more recently by Stöger 2011: 113.

Nowhere in his discussion does he explain how a "continuous supply of…air" could *only* be achieved if a building's windows were glazed with panes of mica. It rather seems that the opposite would be true—that fully blocked windows would impede the flow of air from exterior to interior. Moreover, it is difficult to support an argument that requires all buildings to have employed mica or selinite glazing when the sheer number and size of windows would have made it incredibly expensive in time and materials.[197]

Packer is not the first to assert that window glazing at Ostia was ubiquitous, however. In the publication of the 1908 season in the *Notizie degli Scavi di Antichità*, Dante Vaglieri notes that excavation of one of the rooms in the Theater area (see Fig. 89) uncovered a window "chiusa con lastre di mica, di cui moltissimi frammenti furono raccolti."[198] In a handful of publications two decades later, Guido Calza, who took over as head of excavations at Ostia after Vaglieri, would carry on with the idea that Ostian windows were glazed either with mica or selinite (i.e., gypsum crystal). And although he never explicitly claims that all windows were glazed, the titles of his articles—such as "La Casa Romana" and "La Preeminenza dell'Insula nell'Edilizia Romana"—broadcast his intent to explain normative Roman architecture. In each case, Calza claims that remnants were found in the

197. Baatz 1991

198. Vaglieri 1908: 22–23. It is not entirely clear which room Vaglieri is referring to here, since he only refers to "room C from the 1907 plan." I have highlighted both possibilities in blue.

soil below windows during excavation along with remnants of their wooden framing, but provides neither photos nor drawings of the remains.[199]

But it is overstating the case to posit the necessary presence of glazing in every window at Ostia on the basis of this evidence, even considering the "moltissimi frammenti" reported by Vaglieri. After all, the expense associated with these kinds of window dressings would have rendered them much more suited to some limited contexts, such as the thermal suites in bath buildings, than to every window in the city.[200] Calza points out that Pliny describes some of the rooms of his Laurentine villa as well-defended from storms because of their *speculares* (Plin. *Ep*. II.17).[201] But in another letter of Pliny, it is reported that men climbed through a window at night to accost a slave (*Ep*. VII.27). Instead it seems is best to acknowledge that circumstances would dictate which windows were glazed and which were not. This is the stance most recent authors seem to take. Jean-Pierre Adam merely points out that some of the smaller windows at Pompeii were glazed with glass, but others were left open.[202] Russell Meiggs, while citing the earlier Ostian archeologists on the subject, comes to a less dogmatic conclusion, writing in a

199. Calza 1923: 13–14; Calza 1925: 585; Calza 1929: 525.
200. On glazing in imperial baths, see Taylor 2003: 248–250.
201. Calza 1925: 586.
202. Adam 1994: 305ff.

footnote that "many windows probably only had wooden shutters."[203] Indeed, wooden shutters of the kind common in Italy today have indeed been found preserved in the houses of Pompeii and Herculaneum. These would have allowed an inhabitant to control all three of the most important controlling factors of windows: light, visual penetration, and air movement. And if security were truly a concern, windows could be furnished with metal grates.

The principle that windows throughout the city were fitted with a variety of different dressings according to need aligns with their potential as design-markers. Windows could be deployed in a number of different ways according to the socio-spatial needs of the building's Places and their users. Those needs exist along two different axes, however: windows could be chosen for the effect they had on the interior of the building, but they could also be built for the image they presented to the broader urban environment outside the building. In the rest of the chapter, then, we will tackle each of these axes in turn, before turning to some larger conclusions about the power of windows as design-markers.

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203. Meiggs 1973: 239. Bizarrely, Packer cites this very page as support for his argument that all windows at Ostia were glazed. Baatz (1991, p. 11) echoes Meiggs almost exactly: "Bei diesen städtischen Wohnbauten waren aber keineswegs alle Fenster mit Glas versehen. Vielmehr fanden auch andere durchscheinende Materialien, *vor allem aber Holzläden Verwendung*." Emphasis mine.

As in the previous chapter, we will begin our study of windows at the Garden Houses, where the sheer quantity of windows is astonishing. Gering views their abundance as a marker of the complex's inherent luxury, and it is true that ancient literature suggests that a well-lit interior is a sign of high living and high-quality building design.[204] But windows are more powerful agents of experience than mere conveyors of class. Close attention to how windows are deployed at Ostia reveals meaningful differences. After all, socio-spatial relationships in a multi-use, multistory complex like the Case a Giardino are far more complex than in individual Pompeian houses, and its designer manipulated window height, size, and location in accordance with that complexity. There is, of course, a sound practical rationale for the proliferation of windows at Ostia: with so many multistory structures, lighting was a serious concern, and windows were necessary to maximize interior visibility.[205] Moreover, because of Ostia's location in the Tiber floodplain, its summers are relatively hot and humid, even when compared with Rome; it is even possible that the Case complex has so many windows to take advantage of breezes coming in off the water. In truth, it is likely that more than one factor influenced the designer's deployment of windows. Regardless, the fact that

204. Gering 2002: 112–113. Consider also Lucian's *Hippias,* which treats interior lighting as a key marker of quality in architectural design.

205. Packer 1971: 9; Meiggs 1973: 275; Stöger 2011: 113.

windows lie at different heights in different parts of the complex suggests that their placement represents a conscious choice. We can therefore explore what sorts of social contexts might precipitate these decisions.

Windows and interior space

It may be obvious that windows allow for the intermingling of light and sound across different spaces, but most Roman archaeologists and urban historians rarely acknowledge a fact that introductory architectural textbooks take for granted: that the sensory changes effected by windows can radically alter the experience of the interior. It is a well-documented fact that the inclusion of even a single window along a wall significantly increases noise pollution, or the encroachment of exterior sound upon a building's interior.[206] Because they lacked airplanes, automobiles, and air conditioners, Roman cities were much less noisy than modern ones. In a port city dedicated to the transport of goods between ships, warehouses, and shops, however, the streets could still have been quite noisy. Moreover, brick-and-mortar walls do little to attenuate a noise's volume, and it is unlikely that the sound-absorbent properties of plaster, furniture, or people could have

206. Rettinger 1977: 156; Salter & Associates Inc. 1998: 66.

made a significant impact on incidental noise—that is, acute sounds which occur sporadically, as opposed to constant ambient noise.[207]

The presence of so many windows in the central apartments in a complex such as the Case a Giardino, then, tells us that a desire for noise reduction or avoidance cannot have been a motivation for the design. It seems reasonable to conclude that noise pollution—Seneca's outrage about bath noise notwithstanding—was either considered either tolerable or an unavoidable burden of city living.[208] The central courtyard was likely already protected from a great deal of incidental noise by the outer ring and streetfront shops, each of which was tall and deep enough to block noise from the surrounding streets. This may help to explain why Vaglieri found so many fragments of mica windows where he did, across the street from the palaestra of the Baths of Neptune.[209] The southern end of the Via della Fontana was surely noisy, especially during the peak hours, and although it would not have prevented noise pollution altogether, the addition of window glazing would have mitigated some of its volume.

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207. Salter & Associates Inc. 1998: 221ff. A forthcoming dissertation by Jeffrey Veitch at the University of Kent will evaluate the aural quality of Ostian environments through quantitative analysis with professional acoustic equipment.

208. Consider also Juvenal's lament that city noise prevents him from sleeping at *Sat.* 3.324, and Martial's disgust at the noise made by large crowds at *Epigr.* 12.57.

209. Vaglieri 1908: 23.

We have already seen that poorly-lit spaces carry negative connotations and that well-lit ones are desirable in Roman literature.[210] But precisely how light penetrated the space—in other words, how the window was placed on the wall—also mattered greatly for interior experience. The amount and quality (direct, indirect, reflected) of light affect the way colors are viewed within a room, and this is an important consideration for Romans, with their frescoed houses. Architectural engineer Yoichi Ando even suggests that windows placed high on the wall can be used to allow inhabitants to estimate the time based on the change in shadows as the sun moves across the sky.[211] Moreover, the less natural light in a room, the greater the need for indoor lamps and braziers.[212] Apart from increasing the cost of living, such artificial lighting also affects color perception and brings its own environmental changes with it in the form of smoke and fuel odors.

Visual access and intervisibility are also a concern. Some activities, and therefore the places in which they happen, are predicated on preventing outsiders from participating, if only visually. Windows placed low on the wall can be intended for an in-to-out view, as in a luxury villa along the coast, or an out-to-in view, as seems to be the case at the House of

210. As in: Lucian *Hippias;* Seneca *Ep*. 86.4; Martial *Epigr.* 2.14.1–13, 6.42.
211. Ando 1998: 218–219.
212. Ellis 2000: 150.

the Muses described above.[213] But if the designer wishes to create a sense of separation from the outside, windows can instead be placed high on the wall strictly for illumination.

Based on the evidence from Ostia, designers seem to have understood that they could control how windows were deployed, and that different amounts of light, sound, and air could produce different interior effects. At the same time, the environmental noise introduced by windows complicated interior experience. A number of literary attestations point to dissatisfaction with the way noise pollution created Place conflict. Windows nevertheless pervade Ostia. Meiggs argues, justifiably, that light was the top concern for builders at Ostia, and that windows' utility for lighting was more important than any concomitant drawbacks.[214]

But, as we will see in the next section, Ostian designers also appear to have chosen their windows based on the way they communicate to the exterior world of the city—sometimes even at the expense of the interior.

213. It is certainly possible that the window in Room 8 of the House of the Muses was intended primarily as an in-to-out view. But I find it unlikely that the rear side of the streetfront shops (some 10m across from the window) and the traffic along the so-called private street were a desirable subject for an in-to-out viewshed. Rather, the high level of decoration in the room and low height of the window sill point toward a centripetal function.

214. Meiggs 1973: 239.

Windows and exterior experience

In his exploration of architectural semiotics, Umberto Eco hits upon the potential for windows to function as Place-markers on the exterior of a building:

> Windows—in their form, their number, their disposition on a façade (portholes, loopholes, curtain wall, etc.)—may, besides denoting a function, refer to a certain conception of inhabitation and use; they may *connote an overall ideology* that has informed the architect's operation.[215]

In other words, the choices designers make in how windows are deployed change the experience of the building exterior. The same holds true at Ostia, where designers seem to have taken a keen interest in managing their street-facing façades. The House of the Painted Vaults (III.v.1) illustrates this idea well (Figs. 90–91). Its matching groupings of high, square windows on each side of a monumentalized door provide the building's façade with a unique identity. It is hard to imagine mistaking a drawing or photo of this house with any other building on any other street at Ostia. And yet, there is nothing inherently special about its windows, which are fairly small and resemble others in the city in shape and height; moreover, their appearance in *trifora* is a common pattern.[216] But the way they are deployed on the streetfront, especially in their relationship to the doorway, renders the building readily identifiable. For the House of the Painted Vaults, which has been identified as a hotel or a short-term boarding house, being recognizable could be the

215. Eco 1997: 185. Emphasis in the original.

216. Packer 1971: 9.

key to business success.[217] At Pompeii, where exterior windows were much less common, some bar counters were decorated with colored marble fragments that could be seen from the street.[218] Since Ostian buildings employed the more pliable brickfaced mortar construction, features like engaged columns, pediments, and windows were used to create visual identities.

It is also possible for windows to make a more general statement within their general street environment (what Eco described as an "overall ideology"). I continue the investigation in our primary area of focus around Region III with the *horreum* III.ii.6. The difference in this building's public presentation from the House of the Painted Vaults just down the street is immediately apparent. Unlike its neighbors, the façade of this warehouse features narrow loopholes (Fig. 92–93). Given that loophole windows admit significantly less light to the interior than conventional windows, we are left to question why an architect would choose to include them in his building's façade.

The most well-known building with loophole windows is undoubtedly the Caserma dei Vigili (II.v.1–2), the barracks of Ostia's paramilitary firefighting guild (Figs. 94–96). The building sits just north of the Baths of Neptune, where it was apparently built as part

217. On which identification, see Falletti Maj 1960. Although she does not hazard her own identification, Blake (1973, p. 183) also notes its "most unusual," un-domestic plan.

218. Fant 2009.

of the same construction event.[219] Unlike the bath block, which has entrances on three of its sides and was arranged to take in as much traffic as possible, the Caserma is decidedly introspective. Its single entrance bears evidence of massive doors. The building contains one of the only known shrines to the imperial cult at Ostia, but all votives and inscriptions uncovered there are linked to members of the *vigiles*.[220] The staircases are placed inconveniently with respect to the entrance, further underscoring that the building was not oriented toward the outside.

The exclusive use of loopholes on the ground floor of the barracks adds to the architecture of isolation. In one sense, loopholes are only used in contexts in which the exterior effect is more important than the interior one. After all, the walls of the Caserma could have been outfitted with a series of windows high on the wall, of the kind designed explicitly to light the interior while keeping a firm physical boundary between interior and exterior. Loopholes, on the other hand, deliberately compromise interior lighting for the sake of the exterior image they project. They reinforce the Caserma's paramilitary nature (through visual reference to fortifications) and its introspective socio-spatial organization by making a "stay away" statement.

219. DeLaine 2002: 57.

220. Reynolds 1926: 108; Laird 2015: 89–92.

The overall ideology of loopholes, as Eco would characterize it, persists in the other buildings they appear in. Their apotropaic force is felt nowhere more strongly, perhaps, than in Ostia's Capitolium (Figs. 97–98)—a building whose loophole windows I have nowhere seen commented upon. As others have noted, the podium of the temple is unusually tall for its footprint.[221] This structure appears to have been employed (at least in part) to accommodate a sizable storage area underneath the *cella*. The forum's central temple was evidently clad with marble revetments.[222] The inclusion of these loopholes, then, represents a significant time and energy expenditure on the part of the building team. But while they were necessary to light the storage rooms, the selection of loopholes also make a statement to passersby. Temples often served as treasuries, so the connotative value of their inclusion in the Capitolium suggests both a secure, fortress-like space and one full of valuable goods.

Returning to the warehouse along the Cardo degli Aurighi, then, we can begin to imagine a reason behind the inclusion of loophole windows on the building's façade. Yet it is difficult to imagine that they were intended to enhance security to the building. High-up windows of a larger size (especially if outfitted with metal grilles) could deter human intruders just as well, and it is exceedingly unlikely that these loopholes were ever

221. Calza 1953: 130ff.

222. Calza 1953: 130; Blake and Bishop 1973: 159.

intended to be used by archers under siege. It is much easier to explain their presence as *connoting* security or impenetrability to those viewing the building from the exterior. That is to say, including loopholes on the warehouse's façade incorporated the same sort of visual markings as much more exclusive buildings, like the barracks of the *vigiles* and the storage area below the Capitolium.

I have already remarked in Chapter One that smells can act as powerful Place cues, as the anecdote of Claudius in the Forum of Augustus relates. Andrew Wallace-Hadrill has shown how the context of unwanted smells in the area around a building should affect our interpretation of its contents, but the transfer of unwanted smells can also move in the other direction.[223] At Ostia, it is easy to understand the motivation behind placing the fullery near the Baths of Neptune complex so close to the river (Fig. 99); the location minimizes the number of people who will come into contact with the stench of the fulling vats and maximizes the effect of breezes coming in off the water. The choice of window can also affect the dispersal of unwanted smells. Returning to the familiar intersection of the Cardo degli Aurighi and Via delle Volte Dipinte, let us consider to the so-called Insula Trapezoidale (III.iv.1). Based on its open floor plan and proximity to the Insula delle Volte Dipinte, the Insula Trapezoidale has been identified as a stable serving the clients of the

223. Wallace-Hadrill 2004: 113–116.

hotel. The structure is quite window-poor by Ostian standards, having only three small loopholes on the back side of the building (Figs. 100–101). I have already discussed loopholes' security connotations, and I believe that a stable is a building that would also benefit from projecting security on its exterior. But loopholes placed high on the wall are also well suited to the Insula Trapezoidale because they would deter the transfer of pack animals' unpleasant odors into the street environment. On the other hand, it may be that the animals in this particular stable did not do much to deteriorate the street environment, when streets may have been full of pack animals at other times of day. We know from the *Tabula Heracleensis* that heavy cart traffic was prohibited during the day at Rome, although it does not seem like there was a clear enforcement mechanism.[224] But there was never a full ban on all wheeled transport, and a port city like Ostia must have required almost constant movement of goods between wharves and warehouses.[225] Moreover, loopholes are appropriate to a stable for other reasons: to minimize distractions that might spook the animals, or to keep the interior cool during the heat of the day, for example.

Windows can also be deployed with an eye to disseminating smell or sound from the interior to the broader urban environment. Yannis Hamilakis notes that smell in particular is a powerful tool for "mark[ing] specific locales," constructing Place through smell, the

224. Robinson 1994: 73–76.

225. Kaiser 2012 breaks down the long-lived misunderstanding that all cart traffic was banned at Rome.

sense that is "the most difficult to shut out and control."[226] The Trajanic building III.i.10, identified as a bar/tavern based on its interior furnishings, appears to do just this (Figs. 4.102–103). While many of the bars at Ostia are small and rely on their wide doorways for light and air, this building measures roughly 15 meters by 9 meters and is furnished with five windows.[227] The building is situated on the western edge of the open courtyard created by the III.i complex, which I identified in Chapter Two as an open-air auctioneering zone. As such, the courtyard could expect a large amount of daily foot traffic, especially since it offered connections to the III.x block and the III.ii complex to the south. It does not seem coincidental, then, that all five of the tavern's windows open onto the courtyard rather than the Via della Calcara on the other side of its western wall. In this way the noise of the bar's clientele and the smells from its food could penetrate the high-traffic courtyard and draw in more patrons. Something similar appears to be going on at the so-called Caupona of Fortunatus (II.i.6). Intriguingly, based on the way the street pavement runs and the rest of the complex is constructed, it seems that this tavern was intended to sit in this location, even though it prevents a direct path between the Via della Fontana and the portico along the decumanus (Figs. 104–105). But instead of a solid wall blocking the line of sight to the south from the street, the tavern had a large bay window

226. Hamilakis 2014: 77–78.

227. See Hermansen 1981, Chapter 4 for a survey of Ostian bars/taverns.

connecting its interior to the street environment of the Via della Fontana. Such a large window may certainly have been placed here for the visual effect, allowing bar patrons to watch the street's activity go on around them. But that visual connection also changes the experience of the street, allowing the sights, sounds, and smells of the *caupona* to spread out from the bar's small premises into the busy area around the Baths of Neptune, acting as an advertisement for the services on offer inside.

In sum, the connection a window creates between the interior and exterior of a building allows sensory input to move freely in both directions. In theory, this means that the interior can encroach upon the exterior as much as the opposite. The evidence at Ostia shows that, in some contexts, people did use windows for the effect they created on the exterior. This might be for the visual effect they created—even at the expense of interior lighting, as in the case of loopholes. But it might also be because the inviting noise and smells coming from a tavern might spread into the street and draw in more customers.

Chapter Summary

I began this chapter by acknowledging the tradition of visuality in Roman urban studies. Monuments in the capital have long endured heavy scrutiny for the connections they create between earlier monuments. In the domestic sphere, Pompeian architecture—

especially in the way it creates structured views of its wall paintings and floor decorations—has also furthered awareness of the visual in Roman city life. I then moved on to show how builders at Ostia also made use of visual connections by exploiting the sight lines created by streets. Beyond traditional visual architectural analysis, however, Ostia is one of the few places in the Roman world that allows for a comparative analysis of how windows were used in the architectural design process.

Intriguingly, windows have not enjoyed as much attention as their intimate connection to visibility and visuality might suggest. One reason for that lack of attention might be that windows are mundane objects. Vitruvius spends no time theorizing their proper form or orientation. Roman writers, who spend quite a bit of time describing the view from them or the quality of light produced by them, never make the window itself the object of their attention. As with staircases, that everyday character places them firmly within the category of design-marker. Their form was decided on prior to construction, and the similarity in construction technique across the city, along with their aforementioned mundane character, meant that their deployment was probably a decision of builders rather than inhabitants. Moreover, as I have shown over the course of this chapter, treating windows as design-markers has paid dividends in showing that they were

deployed at different times for their internal or their external effects, and that builders were anticipating different usage scenarios even within the same building.

Windows affect interior experience by making a room more susceptible to light, smell, and sound penetration from the exterior than it would otherwise have been. Sometimes, as in the case of a luxury villa, the goal is to allow views of the scenic landscape around the building. Country landscapes are in short supply at Ostia, and as such, windows were more likely deployed for the purpose of interior lighting, which makes sense considering the multistory blocks that made up the urban fabric. And sometimes, as in the case of the well-decorated rooms of the House of the Muses, a window might be deployed specifically to put the *interior* on display. In this way the wealthy renter/owner of the house could participate in the longstanding tradition of municipal elites visibly performing a variety of social obligations. As that example shows, windows also exerted some influence on the experience of the building exterior. Consider the loophole, which sacrifices interior lighting for the sake of the fortress-like connotations such windows project to the world outside. And some Ostian bars oriented their windows in the most likely direction of traffic in order to entice new customers with the sounds and scents that escaped the tavern's interior.

Although builders could not control the disposition of furniture and people (which are the key ingredients in Placemaking), they did have power over their buildings' architecture, and windows were a powerful tool in their arsenal. I have shown over the course of this chapter that windows must be treated with more careful, reasoned analysis than they have enjoyed before. This is especially true at Ostia, where windows define every street in the city, but they must also be given greater attention elsewhere if we are to achieve our goal of improving our knowledge of the social life of Roman urbanism more broadly. But what can design-markers do to improve our understanding of buildings that have few ground-floor windows or staircases? At the beginning of my final chapter, I will turn to the Aurighi Building in order to address this question.

Chapter 5: Remaining Issues and Conclusions

As the investigation of staircases and windows has shown, "design-marker" is a useful conceptual category for interpreting the remains of Roman buildings. It provides a framework for putting a greater number of architectural units—beyond rooms, walls, and floors—into context, and it refines our understanding of the social divisions in the urban fabric. Stairs and windows have been especially fruitful design-markers at Ostia because there is a large sample from which to draw broad conclusions. But what can we do with a structure like the Aurighi Building? Its nonstandard plan and the number of different spaces within and around it make it one of the most complex buildings in the city, but it does not have nearly as many windows, doorways, staircases, or other cues that spatial analysts have traditionally relied upon.

The complex is therefore an excellent proving ground for a final look at design-markers at Ostia. In the pages that follow I will show that the Aurighi Building's atypical plan indicates that it relied more heavily on design, not less. Although there are not enough comparanda in the city to firmly declare that corridor width and visual motifs are design-markers, I will also show how qualities like these can help us better understand the designer's expectations for use. The placement of its toilet will also prove to be an

important consideration in evaluating social behavior in the Aurighi Building, and I will briefly discuss toilets at Ostia more broadly.

Having thus finished an analysis of design-markers in Ostian architecture, in the rest of the chapter I will turn my attention to the significance of my conclusions, their impact on the field, and opportunities for future research.

Design-markers in the Aurighi Building

The Aurighi Building has few windows and staircases. Those units have already proven their value as evidence for designers' social expectations, however, so I will begin my analysis with them.

The southern end of the Aurighi Building can be roughly divided into thirds: the two sets of spaces defined by pillars, divided by the large central courtyard. Unsurprisingly, the two peripheral groupings are outfitted with their own stairwells—the only stairs in the first phase of the Aurighi Building. Some of the stair qualities I identified as important in Chapter Three don't seem to apply here: they are visible from the central courtyard and adjacent corridors, and there is only one way for them to have been reasonably oriented. Nonetheless, there is an important difference between the two stairwells, and it has

implications for how we understand the spatial divisions of the southern end of the Aurighi Building.

The western stair is the more straightforward of the two (S3 in 106; Figs. 107–108). It was a traditional scissors stair that led to at least one upper floor covering rooms 9–20 (labeled on Fig. 106). Remnants of the vaulting in rooms 13 and 14 attest that the upper floor rose to a double height in the first phase, and was retrofitted to accommodate the mezzanine level after the great rebuilding (Figs. 109–110). If any of the upper-floor space in the Aurighi Building was intended for residential space, this stair was the most likely means of access. That being said, Stair 3 is located along Corridor 5, which I have already pointed out was the longest single path through the entire III.x block. So the rooms accessed via Stair 3 were not necessarily lower-access than the other areas of the Aurighi Building. There is no evidence for a doorway or other blocking mechanism that might indicate the intended access level, as can be found in the III.xiv block (Fig. 111).

The eastern stairwell, on the other hand, is a double-stair, with each side rising to the same mezzanine-level landing (S1/S2 in Fig. 106; Figs. 112–113). The fact that the same landing could be reached from both the transitional zone to the east and the central courtyard to the west suggests that open access to the upper floor was a priority for this stairwell. There is no evidence that it served any rooms higher up than the mezzanine

level over the rooms 1–3/26–29 area (see Fig. 106) This fact, combined with the presence of the graffito recording the sale of a slave in the understair room—a kind of space traditionally thought to be low-access—should also cause us to imagine a non-residential context for these upper-floor rooms. That would make sense given that the rest of the the transitional zone is dedicated to attracting outside traffic to the block.

But the chronology of this stairwell is muddy at best. While it is obvious that it served the inserted mezzanine level following the great rebuilding, it isn't clear whether the remains can tell us anything about the further floors in this area during the original phase of the building. Consider the inexplicable presence of a blocked-up doorway in the southern wall of the stairwell (Fig. 114). It is easy to imagine that the S1/S2 stairwell was simply oriented differently in the earlier phase of the building and led to this blocked doorway, but there are no visible traces of a preexisting staircase that was removed. Moreover, Mols' chronology rests almost entirely on the plastering of this stairwell and the graffito in the room below it, so changing the reconstruction without clear evidence would only serve to destabilize the building's chronology for little gain.[228]

On the other hand, the blocked-up doorway still sits at the 10-foot level, and the traces of vaulting in Rooms 26–29 suggest that there wasn't another level on top of it. I am

228. Mols 1999: 168.

willing to believe that there were only two floors above the rooms 1–3/26–29. It may even be that the presence of these rooms is what precipitated extending this level over the whole of the complex in the later second century, especially after the bath began to expand. It is important to note, however, that this interpretation ignores the problem of the mosaic fragments visible on top of the third floor of the Sette Sapienti complex today (Fig. 115). As I explained in Chapter Two, that section of the building looks to remain an intractable problem into the future, so for the time being I choose to use the only sure evidence we have available to us.

The differences in each staircase, then, reflect differences in the organization of the upper floors. It is reasonable to conclude that the upper-floor spaces served by these two stairwells were expected to hold different kinds of Place, with S1/S2 serving wider-access spaces that continue the environment of the ground floor onto an upper level. In contrast S3 might have held lower-access spaces, even residential space, although its proximity to high-traffic corridors and the central courtyard might render residential space less likely, it is not impossible. Moreover, there are other possible uses for lower-access space in a marketplace like the Aurighi Building, including the sale of goods requiring greater security, or even temporary-use rooms for prostitutes.

Windows in the Aurighi Building unfortunately provide little information that cannot have been gleaned from other characteristics of the structure. Exterior windows only appear on the west façade of the building, and are heavily modified by the installation of the Via Tecta (Figs 116–117). The windowed—but solid—western wall presents a stark contrast with the eastern façade of the building, which was delineated instead by a pillared arcade.

In fact, the difference in structure between the western façade and the transitional zone to the east shows that access—more specifically, connecting the building to as many pre-existing traffic routes as possible—was a prime design consideration for the Aurighi Building. This is further confirmed by the number of access points into the block, and the many directions of approach those entryways imply. People could enter the Aurighi Building from all directions: through the transitional zone to the east, from the Via della Foce to the north via the Caseggiato del Serapide courtyard, and from the west at multiple points, via Corridors 6 and 8 (as labeled on Fig. 106), or the southern street surrounding the Casette-Tipo apartments. So while the building privileges north–south movement (on which more below), it was oriented to accept every potential source of pre-existing traffic in Region III. This structure is one of the reasons why the III.x block—especially in its

original incarnation as the Aurighi Building—is generally considered to have been a type of commercial space.[229]

Recall from Chapter Two that the III.i and III.ii complexes were both earlier structures, consisting of shops and auctioneering spaces arranged around a pair of open courtyards. These two courtyards were connected by a doorway near where the small shrine now sits, just to the north of the Sacello delle Tre Navate (Fig. 118). These two complexes therefore represent a pre-existing vector for mercantile traffic. It is therefore significant that the designer treated east the façade of the Aurighi Building completely differently than the west. While the western side of the complex is almost entirely made of solid walls, the east is a long row of arcuated pillars (Fig. 119). This openness therefore points to the designer's interest in encouraging the same people walking between the III.i and III.ii complexes to also enter the Aurighi Building. Furthermore, although the way the Aurighi Building presses into the transitional zone creates an awkward convergence of walls and porticoes when viewed in plan, the invasion of the eastern portico serves to draw traffic into the corridor network inside the complex.

Staircases and windows might not fully explain the designer's socio-spatial expectations for the Aurighi Building, but there are other architectural characteristics in

229. Blake and Bishop 1973: 181–183; Scagliarini Corlàita 1995: 173.

the complex that might function as design-markers. I turn first to the manipulation of movement patterns and corridor width.

Although there are just as many entrances and corridors running east–west in the building as north–south, there is an overwhelming privileging of north–south movement in the Aurighi Building. This is established in the first place by the form of the block itself, which runs significantly longer along the one axis, and therefore has longer corridors moving along that direction. But the designer of the block also emphasized north–south movement through the manipulation of corridor widths. Take the length of Corridor 8 as an example. Although I label it as a single corridor because that is how it appears in the final phases of the building (and thus on the *Scavi di Ostia* plan), during the first phase it was two separate corridors divided by the central courtyard. The western section is 2.25 meters wide, while its partner to the east is only 1.5 meters wide. So while there is nothing blocking movement from west to east through the building, the narrowing of the corridor on the opposite side of the courtyard could have served as a subtle visual cue dissuading movement in that direction. The passage grows smaller because the wall of the rooms 26 and 27 intrudes further north than the rooms 19 and 20 on the other side of the block. So, for someone moving west to east, the passage narrows on the right-hand side (Fig. 120). Steven Ellis has shown that, at Ostia, the right-hand side of passages was the the

dominant one for movement cues, a phenomenon he calls the "cult of the right."[230] I therefore consider this shift in orientation to be a subtle architectural cue encouraging traffic to continue circulating within the block rather than continue to move through it.[231] In this way, the Aurighi Building can provide a structure to movement within the block without relying on solid walls.

The idea that a small change in corridor width controlled traffic in the block may not be completely convincing when considered on its own. But it is one of many indicators in the Aurighi Building that point to differences in the expected use of different parts of the block. A wider corridor in the west third of the block suggests expectation of more traffic moving through it. This is further supported by the placement of the toilet in the block.

Few buildings at Ostia had a public toilet, so we can be certain that there was no social norm requiring their presence in new construction. The toilet in the Aurighi Building may therefore reflect the desires of the building's patron(s), who wanted to draw traffic into the market space. Nonetheless, public toilets cannot simply be placed anywhere; they require plumbing and ventilation, meaning that the building designer must think about and plan for its location in advance. Moreover, including a public toilet in the

230. Ellis 2011: 164ff.

231. L. M. White's (2012, p. 478–9) observation that the later Sacello delle Tre Navate was situated to be low-access would also fit into this narrative.

building brings with it an assumption of a high volume of use, and therefore its placement should show where the designer expected high traffic. Indeed, we can see toilets working as design-markers at other buildings in Ostia.

The public latrine in the *palaestra* of the Baths of Neptune, for example, reflects the open nature of that space (Fig. 121). As Hermansen points out, few living quarters at Ostia were furnished with their own toilet facilities.[232] This latrine is one of only a few available in the entire eastern half of the excavated city, and the closest to the Porta Romana gate. The mere presence of a publicly-available toilet, which can only be accessed from the covered portico inside the block, means that the *palaestra* could expect a steady stream of visitors who were not necessarily attending the baths each day. If the designer of the complex had wanted to exclude non-bath-related traffic into the complex he could easily have placed the latrine among the rooms of the bath proper. It seems, however, that bath designers in second-century Ostia viewed a universally available latrine as an important component of a public bath. We can see this principle even more clearly in the case of the Forum Baths, built in third quarter of the second century CE (Fig. 122). Whereas the latrine in the Baths of Neptune block is not directly visible from the street, this one lies

232. Hermansen 1981: 45.

along the Cardo itself, and is the only building separating the *palaestra* and from the busy street. Those using it did not even have to enter the courtyard.

In contrast, the toilet in the Caserma dei Vigili reflects that building's different social expectations (Fig. 123). The very existence of a second latrine in such close proximity to the one in the Baths of Neptune suggests that each had a distinct user group, and its confinement in the structure adds further support to this idea. In the bath block, the latrine is clearly visible from the northern end of the courtyard, and, while it is not accessible from the street as in the forum baths, it opens directly onto the *palaestra*, which was itself easily entered from the street. The toilet in the barracks is also set into a corner, but its entrance is not visible even from the central courtyard. Someone would have needed prior knowledge of the toilet's existence in order to know how to get to it.

Following this train of logic, we can assume then that the toilet in the Aurighi Building was also placed according to the space's function as an open-access marketplace, and was conveniently located for as many people as possible to pass by it. The fact that it was placed on the perimeter of the building means that it had the potential to draw outside traffic into the building. And while some of those using it may never have gone further into the building, others may have been drawn into the marketplace's interior courtyard.

Scholars of modern cities know from decades of observation that proximity to heavy traffic flows—even if you have to make them yourself—is the key to a market's success.[233]

Indeed, the Aurighi Building shares a number of attributes with the highly regarded market buildings from the early modern West. Consider, for example, William Whyte's description of Boston's Faneuil Hall Marketplace:

> Developer James Rouse and architects Jane and Ben Thompson thought the very narrowness [of the street at Faneuil Hall] would prove a virtue. So it has. The walking of it is an experience and it has attracted one of the heaviest pedestrian flows of any marketplace in the country. You edge past food displays, detour around knots of people sampling the food, and past all sorts of smells and sounds.[234]

The Aurighi Building is similarly narrow, with long sight lines running through the building. It also employs visual motifs, like the string cornice on the pillars throughout the complex, in order to create a sense of identity and visual unity. These sorts of cues establish the boundaries for the building while not impeding movement, a principle that Whyte believes is the most is the most important consideration when designing buildings in a complex urban environment.[235]

If the most important goal for a marketplace is to encourage traffic to move within it, then it seems like the Aurighi Building was structured well. And yet, the Aurighi Building was radically altered soon after its construction. While the final form at the turn of the

233. Gehl 1987: 113.
234. Whyte 1988: 94.
235. Whyte 1988: 95ff.

second century may reflect the changing circumstances of Region III in the five decades following the Aurighi Building's construction, the "grande ristrutturazione" took place a mere 10–15 years later. Doesn't the very existence of such a massive retrofit suggest that the design of the Aurighi Building was unsuccessful, and that its owners felt the need to insert more solid walls into the building to bring it in line with a more conventional building plan? Mols' conclusions seem to answer in the affirmative. He writes that "Il cortile del Caseggiato degli Aurighi, originariamente costruito come centro rappresentativo di un complesso di alta 'standing,' subì dei cambiamenti che rappresentavano in varie fasi una divisione sempre meno pubblica e più privata."[236]

However, it is equally possible that the great rebuilding reflects the opposite trend: that the Aurighi Building was overwhelmingly successful in attracting foot traffic from within region III. The idea of Mols and Scagliarini Corlàita, that the great rebuilding represents a turning away from the commercial toward the residential, rests largely on assuming that the inserted mezzanine level was residential in nature. My close study of staircases in Chapter Three has already challenged this assumption. It may just as well be that the owner of the Aurighi Building financed the great rebuilding in order to increase

236. Mols 1999: 172. Gering (2000) has a similar opinion of the Case a Giardino, which also saw heavy renovations. In the title of his study he calls it an "unfulfilled architect's dream," with a design that was not appreciated or wanted (and therefore radically changed) by its users.

his revenue by maximizing usable market space on a level which, based on the evidence of Stairs 1 and 2, may already have been used for that purpose.

The gradual expansion and embellishment of the Baths of the Seven Sages also points to the success of the Aurighi Building. There were, after all, two other large bath buildings within 100 meters of the III.x block. The fact that a bath in the middle of one of the largest contiguous city blocks in Region III, far from the high-visibility streetfronts to the north and south, was expanded, points to the Aurighi Building's success in drawing traffic into its deepest interior.

Discussion of overall findings

I began this dissertation with a discussion of human-environment interactions. I showed how Romans, like more heavily documented modern societies, operated by interpreting cues in the world around them. Many of these cues—which I termed use-markers—were created and manipulated by Romans themselves as time and circumstances dictated. But other cues lay firmly in the realm of architecture and were less prone to frequent change. These design-markers relate to fundamental ideas about how a space was accessed, and how it connected to the broader built environment around it, and they formed the basis for my research into the design of city blocks at Ostia Antica.

Design-markers, I hypothesized, should reflect their builders' ideas of how their structures would be used. That is to say, designers will have to deploy their architecture in ways that support the social environments they expect to exist in their buildings. Vitruvius points to this very idea when he suggests that the difference between architects and laymen is the ability to envision whether a building will be successful in form *as well as function* before it has been built. Patterns in their deployment should therefore exist both within a single structure and between different structures that will reinforce those normative assumptions.

Further, I speculated that as complexity increased—as designers were required to build structures with more spaces on more floors with more and more pre-existing structures to contend with—patterns in the deployment of design-markers would be more likely to emerge. The area called Region III in the Roman port city of Ostia Antica is particularly well-suited to test these ideas. Its remains cover a large, contiguous area, and its buildings are spatially complex, with numerous entryways, staircases, doorways, and windows. Although the buildings in the area have been fairly well published, they were excavated hastily without attention to their artifact assemblages. The buildings of Region III also therefore presented an opportunity to show that study of design-markers allows us

to improve our understanding of the built environment by relying on the architecture itself.

Following three seasons of fieldwork during which I documented the buildings at Ostia, two architectural units proved especially fruitful: staircases and windows. Each is found in abundance in the city, allowing me to see with great clarity the patterns in their deployment. And as I showed in Chapters Three and Four, those patterns reveal significantly more information about the social environment of Ostia than previously thought.

Since staircases are controlling points of access, it makes sense that they would be important tools for defining social space inside buildings. What my investigation of staircases at Ostia showed, however, was that their topographical relationship —that is, their actual physical location relative to each other—is at least as important for understanding socio-spatial divisions in their buildings as their topological relationship is. After investigating stairs' placement and visual status at Ostia, I proved that the traditional internal/external dichotomy is insufficient for describing staircase contexts. Moreover, when stairways are compared across the city, it is possible to make more refined guesses about an upper level's access value than simply assuming that they all led to rentable apartments. I also showed how careful attention to the arrangement of all stairs

within a complex like the Garden Houses can show that we cannot assume upper floors match the ground floor plan exactly. Finally, the evidence I presented in Chapter 3 underscores the fact that Roman city-dwellers of all social classes lived in close proximity. Even the most famous apartment at Ostia, the House of the Muses, was built to allow each floor to be rented independently. We must therefore be wary of applying our own ideas about urban living to Ostia, no matter how seductive their overt resemblances may be.

In Chapter 4, I explored the environmental influence of the window, one of Ostia's most defining features. Here, too, I showed that an underappreciated architectural feature contains useful social information. Because of the city's verticality, builders at Ostia were more or less required to include windows in their buildings or else risk poorly lit interiors. And yet some architects sacrificed good lighting to the connotative power of loopholes in establishing their overall building's outward presentation. Buildings like the III.ii.6 horrea or the House of the Painted Vaults show that designers were interested in establishing exterior visual qualities that would cue certain relationships with people on the street. Not only that, but windows could be deployed specifically to construct frames for public presentation of the interior, as in the well-decorated rooms of the House of the Muses. Despite their ubiquity, nearly every building at Ostia had a unique assemblage of windows.

They therefore highlight the fact that Ostian architects were cognizant of the social ramifications of their building's ultimate form, and that they employed design-markers to facilitate specific social environments to the full extent that architecture would allow.

Finally, at the beginning of this chapter, I turned to the intriguing case of the Aurighi Building. Defined by open corridors rather than walls and doorways, the complex is perhaps the most radical departure from Ostian architectural norms. Nonetheless, it clearly structures human movement through it, privileging north–south over east–west. A number of features, such as the open eastern façade that extends into the transitional zone, and the alignment of the long Corridor 5 with the entrance to the private street of the Case a Giardino across the street, shows that the designer was keenly aware of pre-existing movement patterns in the area, and that he believed the success of his building was tied to them.

In sum, this study has not only validated the premise of design-markers as an analytical tool; it has also shown that socio-spatial divisions are embedded in the fabric of the walls themselves. Objects like staircases and windows reveal not only the designer's expectations for behavior within his buildings, but also the relationships the exterior of those buildings were expected to have with the broader city environment. This fact allows us to test longstanding assumptions about how some of the most famous buildings at Ostia

were used, but also to propose new use patterns and develop ideas about the social structure of cities in imperial Italy, if not the Roman world.

Impact on Roman urban studies

These findings contribute at many different levels of Roman scholarship. In the narrowest scope, I have improved our understanding of some of the most famous buildings at Ostia. I presented the first plan of the little-studied original phase of the III.x block, revealing an innovative organization that expands the arcaded portico design of buildings like the Loggia of Cartilius Poplicola onto a block-wide scale. I also corrected some longstanding misconceptions about the Case a Giardino, highlighting the perils of overzealous use of anachronism in describing the ancient world. By treating them as design-markers, I also better placed the variety of different windows at Ostia into their social context, building on the work begun by Packer in the 1970s.

Looking more broadly, I have provided a new way of thinking about the theory and method of ancient spatial analysis, showing that it is possible to move beyond Space Syntax while still remaining focused on the architectural remains as they stand. I believe that my conclusions about the different types of residential arrangements in the Case a Giardino, for example, offer a significantly more nuanced appreciation of architecture than

is traditionally produced with Space Syntax. This approach is a repudiation, in effect, of of Hillier's main arguments—that social theory is at best misleading, and at worst worthless, for studying architecture.[237]

While Classical scholars have argued for some time that Romans behaved according to spatial cues, prior studies have tended to give primacy to those cues that remain in the archaeological record.[238] In Chapter One, I showed that it is precisely the cues that do not survive that had the most power for determining Place. New excavations focusing on cataloging environmental and microscopic finds in assemblages may be able to improve on our ability to identify the more ephemeral social cues within the ancient built environment, but that does not help us make sense of the already excavated regions of Ostia. Nevertheless, my study has shown that architectural remains can still be mined for social information.

My findings also have important implications for how we understand the social environment of Rome itself. Ostia's geographic, political, and administrative proximity to the capital reinforces the supposition that spatial-behavioral norms were more or less the same in each city. Although it is not an exact copy, the haphazard, mixed-use nature of

237. Hillier 2008: 224.

238. For example, Clarke's (1975) concept of the "kinesthetic address," in which movement in a building is defined by floor and wall decoration.

Ostian streets mirror those areas of the capital that are no longer archaeologically available—areas like the Suburra or the streets along the Aventine. Knowing how different kinds of social spaces interacted, and how the building process accommodated the variety of daily behaviors Romans participated in, will only improve our ability to put into context the ancient world's most important city.

Taking the widest view, my exploration of design-markers has clarified our understanding of the Roman building process writ large. Contrary to modern theorists, who posit a clear boundary between architecture, which is discursively designed, and vernacular building, which relies on a kind of folkloric workman's knowledge, I have shown that the Romans responsible for the quotidian architecture of Italian cities were not only aware of theoretical concepts like social space but also that their architecture helped to define it. Even the least interesting parts of everyday buildings were deployed with care, not in keeping with some sort of "staircase tradition," but according to specific needs of a given building in its architectural context. Design-markers carry with them the vestiges of the designer's expectations for how his structure would be approached, accessed, and used.

After viewing all of the evidence I have presented, this conclusion might seem obvious or unexciting; but its significance should not be underestimated. We have long

described the monumental spaces of Rome as cleverly and purposely designed, with an eye towards a specific use and a specific audience. I believe that I have shown that the everyday city blocks that made up the varied urban fabric of the ancient world's biggest cities relied even more on planning, not less. Trajan possessed the funds and authority to remove an entire hillside and clear entire neighborhoods to build his forum. The unknown architects and building teams responsible for Ostia, on the other hand, were forced to contend with a mess of pre-existing streets and usage patterns, not to mention finite budgets. In such an environment, creating successful—usable—city blocks required careful consideration. Design-markers bear the evidence of that planning.

Opportunities for future research

This initial exploration of design-markers at Ostia has highlighted a number of areas of research that would benefit from further study. First, they should be explored in the other excavated urban areas in the Roman world. Pompeii and Herculaneum are the most obvious comparanda, but they are not the only available sites. The cities of the Roman Maghreb, especially Djemila and Timgad, would be well-suited to the same sort of analysis that I performed here. Many of their buildings are contemporaneous with those of Region III at Ostia, so they could provide a synchronic snapshot of building practices in a

different geographic location. And although the way they were cleared has left little information about their artifactual assemblages, their ground-floor architecture is well-preserved. It would be especially worthwhile to see if there are any differences in how windows or staircases are deployed in these towns; these might point to different socio-spatial expectations for urban life in North Africa than in the Italian peninsula. Likewise the imperial-era blocks of Ephesus, Beit She'an, Sepphoris, and Rome itself would flesh out a wider study of design-markers in Roman cities.

My study has also shown that further excavation in Ostia is sorely needed. Until we have a better sense of the pre-Trajanic levels and layout of Region III, the area will remain a sadly underexploited opportunity for understanding the interrelated development of city blocks over a period of rapid building and renovation.

Finally, this project has left me amazed at how little scholars of urbanism across different fields speak to each other or are aware of each other's research. This deficiency hurts in both directions. Many who study the modern world seem unaware that their claims about the unique nature of modern cities are undermined by even a cursory understanding of antiquity. At the same time, Classicists—who rely on theory to provide foundations for interpreting our incomplete evidence—are not taking advantage of the information and models drawn from big-data studies of living populations. My hope is that

this dissertation will stand as an additional voice in the call for greater interdisciplinary conversation throughout the academy.

Final thoughts

Surviving texts, along with Romans' epigraphic habit, give us an excellent idea of how members of the equestrian and senatorial orders were expected to behave in all kinds of contexts. But the elite represent a small portion of the millions of people who lived in cities in Italy, let alone across the Mediterranean. I consider this project an important step toward creating a clear outline of the social structure of city life as it operated for all urban denizens. Placemaking sits at the heart of humans' social interaction. Understanding what kinds of social space exist within a building, and how builders thought they needed to be arranged—which must be kept separate, which could exist in juxtaposition—is therefore a necessary precondition for understanding the rules for behavior within those spaces. Further study of how design-markers are deployed in Roman cities, coupled with nuanced models of Roman Places and behaviors, has the power to bring a level of clarity our knowledge of Roman cities not yet seen.

Figures

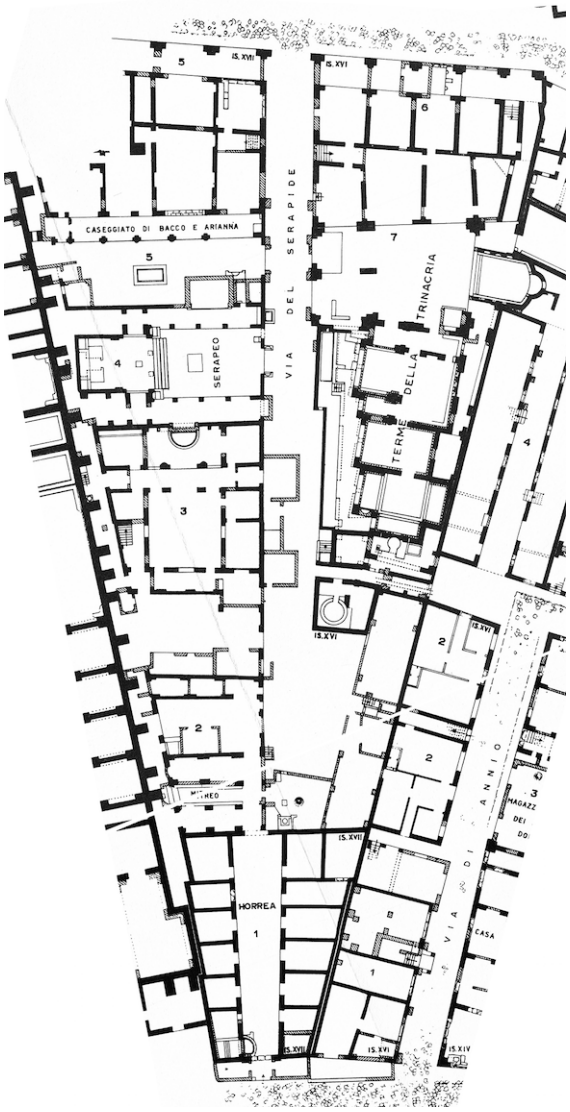

Figure 1. Plan of the Triangle Block (after *Scavi di Ostia* vol. 1).

Figure 2. Monumental entrance to the warehouse at the southern end of the Triangle Block. Photo by the author.

Figure 3. Photo of the IOVI SERAPI inscription found in the Triangle Block, as displayed at the Scavi di Ostia today. Photo by the author.

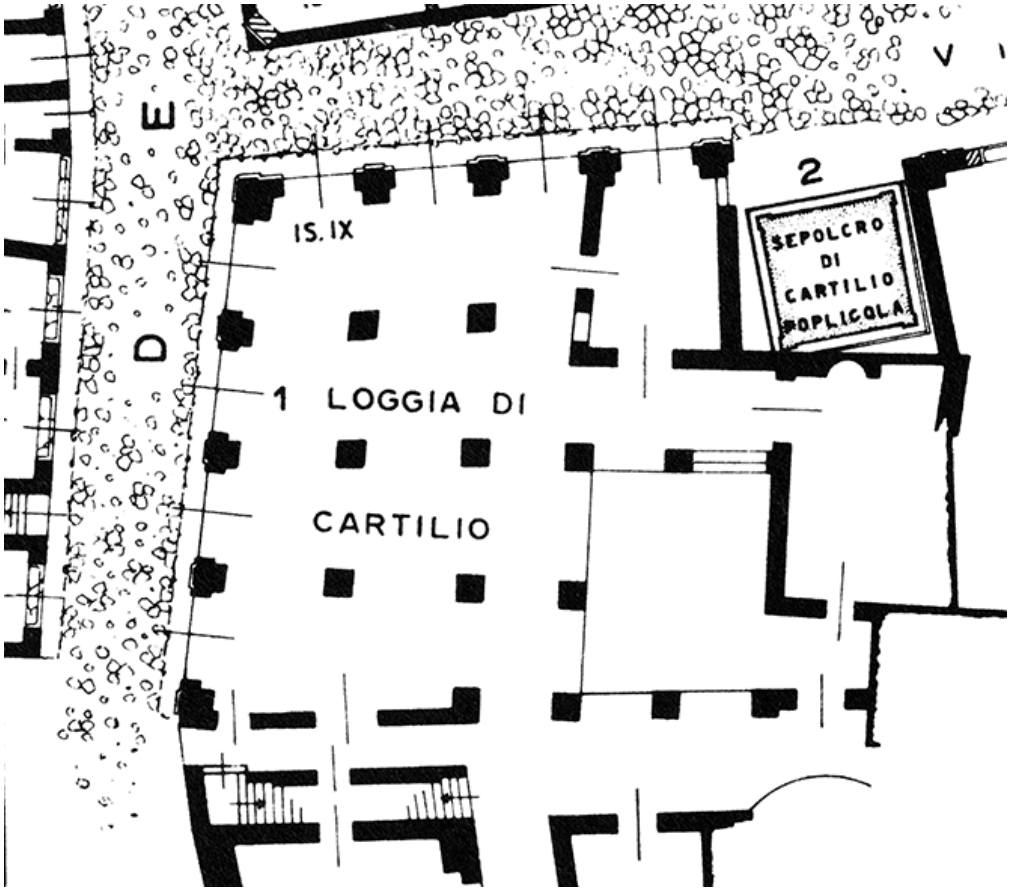

Figure 4. Plan of the Loggia of Cartilius Poplicola (IV.ix.1) (after *Scavi di Ostia* vol. 1).

Figure 5. View of the interior courtyard of the Terme della Trinacria (III.xvi.7). Photo by the author.

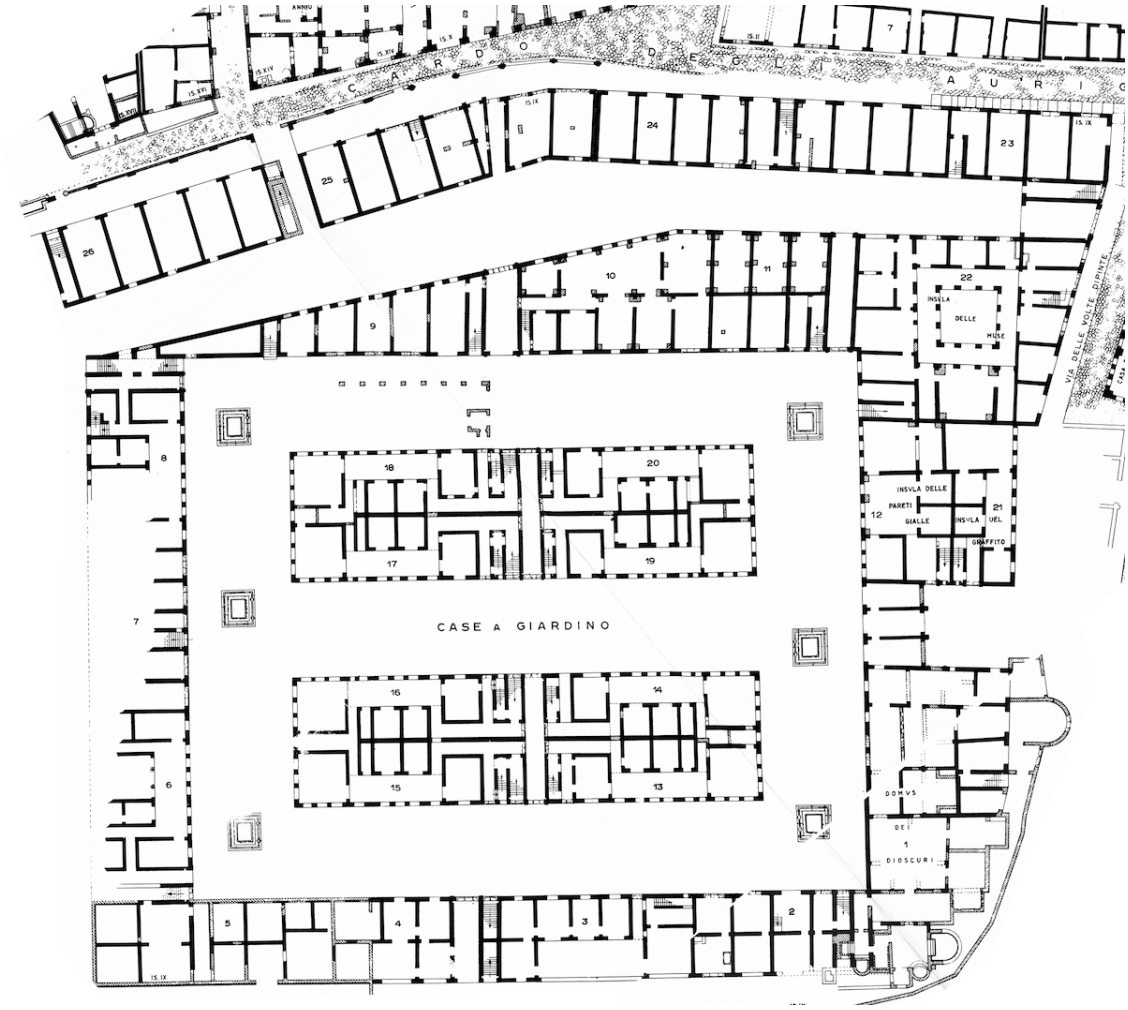

Figure 6. Plan of the Garden Houses (after *Scavi di Ostia* vol. 1). Photo by the author.

Figure 7. View of the central courtyard of the Garden Houses, facing East. Photo by the author.

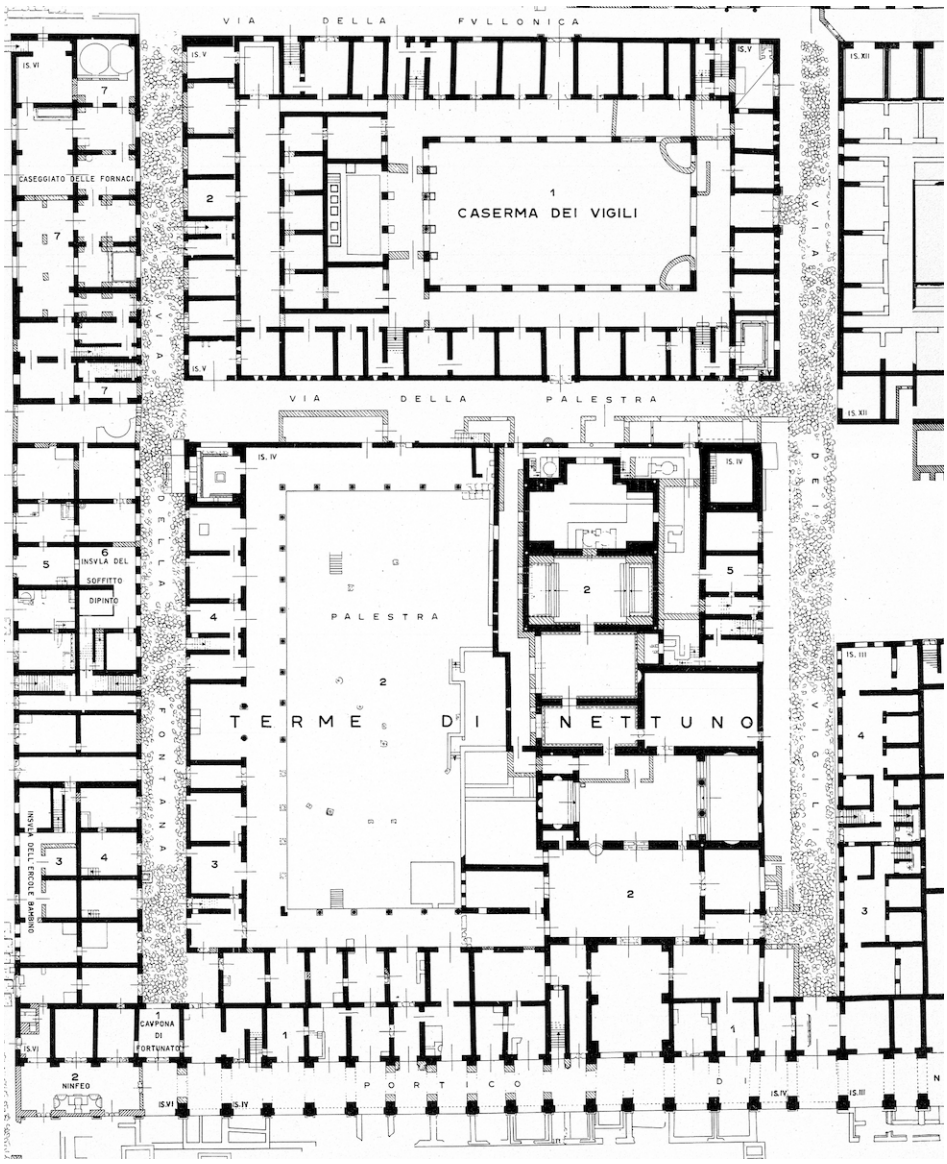

Figure 8. Plan of the Baths of Neptune Complex (after *Scavi di Ostia* vol. 1).

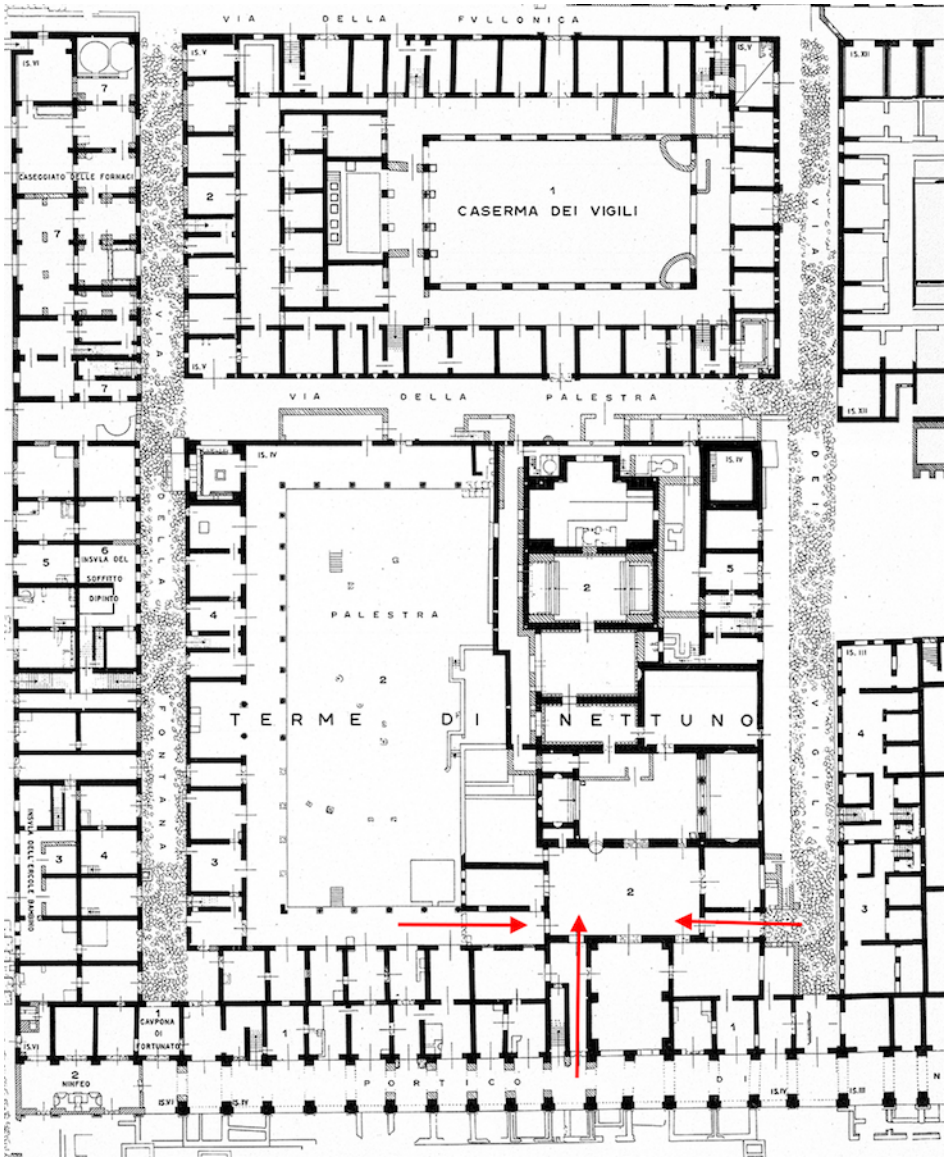

Figure 9. Plan of the Baths of Neptune complex with bath entrances highlighted (after *Scavi di Ostia* vol. 1).

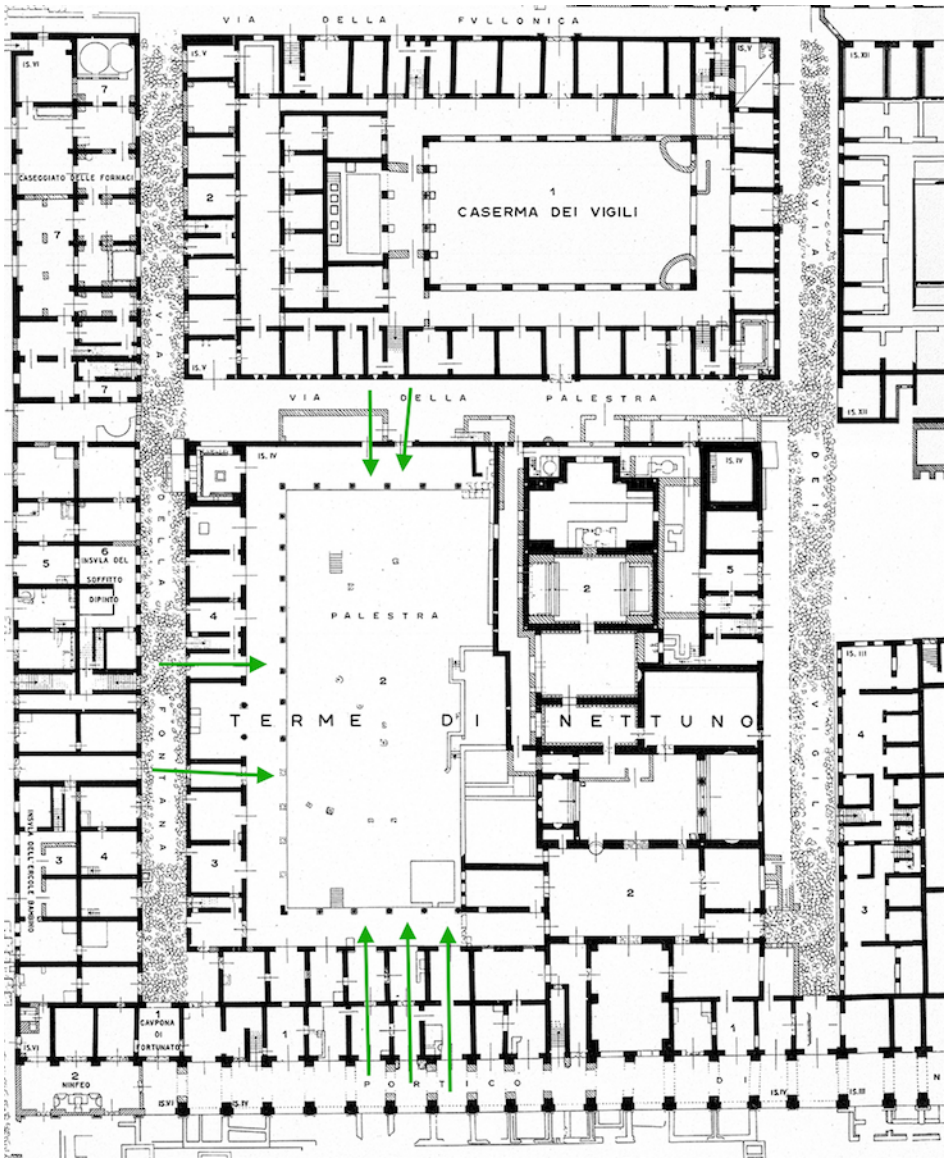

Figure 10. Plan of the Baths of Neptune complex with *palaestra* entrances highlighted (after *Scavi di Ostia* vol. 1).

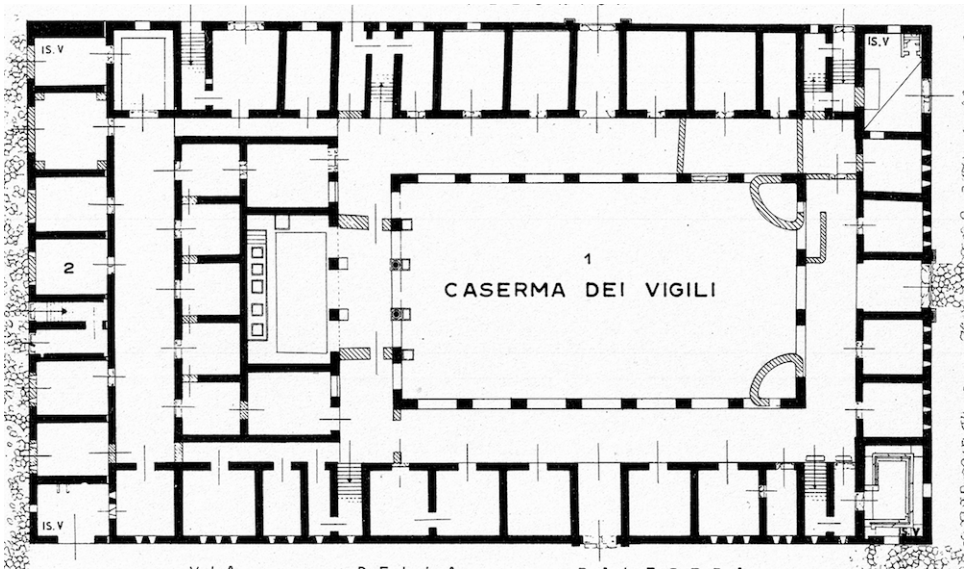

Figure 11. Plan of the Barracks of the *Vigiles* (after *Scavi di Ostia* vol. 1).

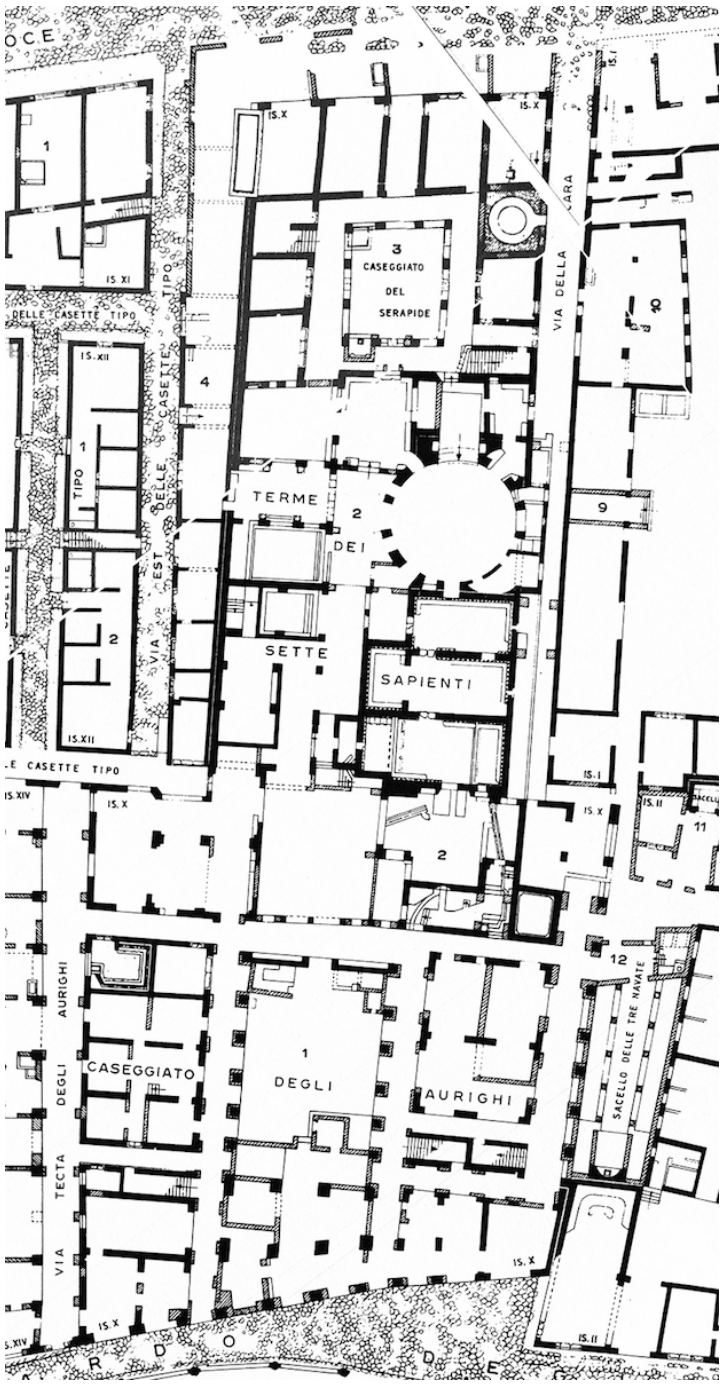

Figure 12. Plan of the III.x block as it currently stands (after *Scavi di Ostia* vol. 1).

Figure 13. Photo of room to the east of Aurighi Building courtyard, facing north. Photo by the author.

Figure 14. View of the Caseggiato del Serapide courtyard vaults, facing East. Photo by the author.

Figure 15. Phase plan of the Terme dei Sette Sapienti (after Heres 1992).

Figure 16. East façade of the Aurighi Building, seen from the East. Photo by the author.

Figure 17. Western portico of the Aurighi Building courtyard (taken from the East). Photo by the author.

Figure 18. Second level of the same portico, seen from the west. Photo by the author.

Figure 19. View down corridor 5, facing south. Photo by the author.

Figure 20. View of corridor 6 in the Aurighi Building, facing west. Photo by the author.

Figure 21. Damaged pillars in the "transitional zone" of the Aurighi Building. Photo by the author.

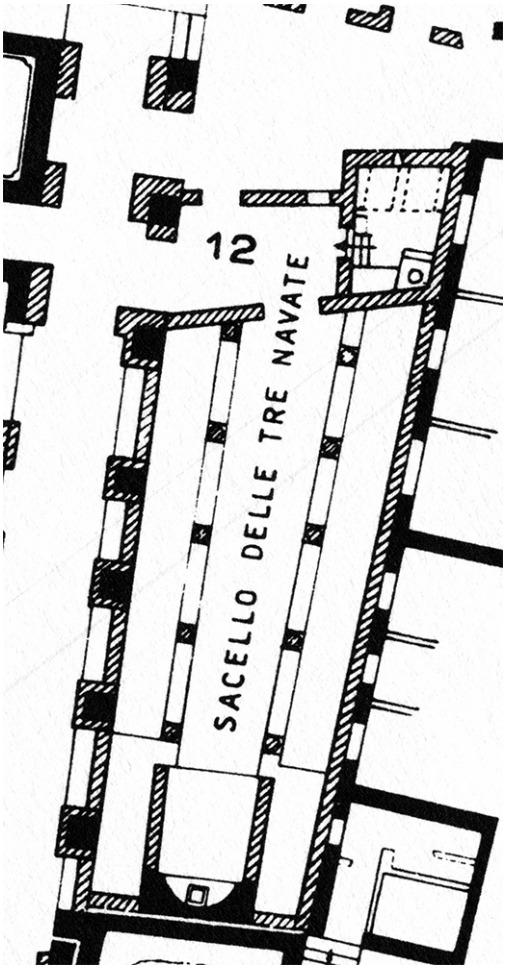

Figure 22. Plan of the Sacello delle Tre Navate, after *Scavi di Ostia* vol. 1.

Figure 23. Arcade blocked by the insertion of the Sacello delle Tre Navate, view facing East. Photo by the author.

Figure 24. Monumentalized entrance to the Terme dei Sette Sapienti, facing South. Photo by the author.

Figure 25. Shrine to Serapis, inserted into the Caseggiato del Serapide courtyard. Photo by the author.

Figure 26. Marble plunge pool from the Terme dei Sette Sapienti. Photo by the author.

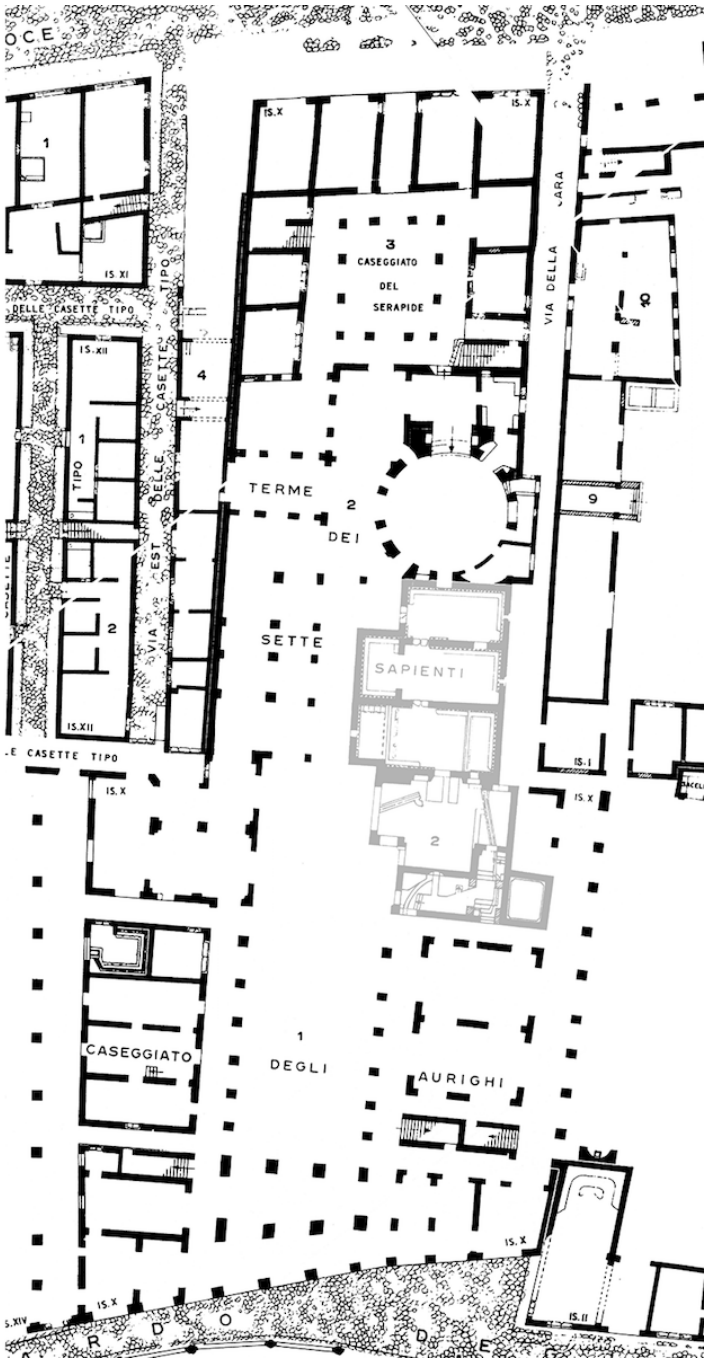

Figure 27. Hypothetical plan of the original phase of the III.x block. Greyed-out section is uncertain due to later reconstructions. After *Scavi di Ostia* vol. 1.

Figure 28. Photo of the Loggia of Cartilius Poplicola (IV.ix.1). Photo by the author.

Figure 29. Photo showing the raised ground level of the III.ii complex. View facing north from the Cardo degli Aurighi. Photo by the author.

Figure 30. Vaulted pillar from original phase of the III.x block still visible from the current remains of the Terme dei Sette Sapienti. Photo by the author.

Figure 31. Pillar from original phase of the III.x block still visible from the current remains of the Terme dei Sette Sapienti, springer decoration visible in center of image. Photo by the author.

Figure 32. Plan of the III.x block highlighting the most difficult-to-understand section of the complex. After *Scavi di Ostia* vol. 1.

Figure 33. Photo of the reconstructed upper floors of the Aurighi Building, taken from inside Stair 3. Photo by the author.

Figure 34. Photo of the reconstructed upper floors of the Aurighi Building, taken from inside Stair 3. Photo by the author.

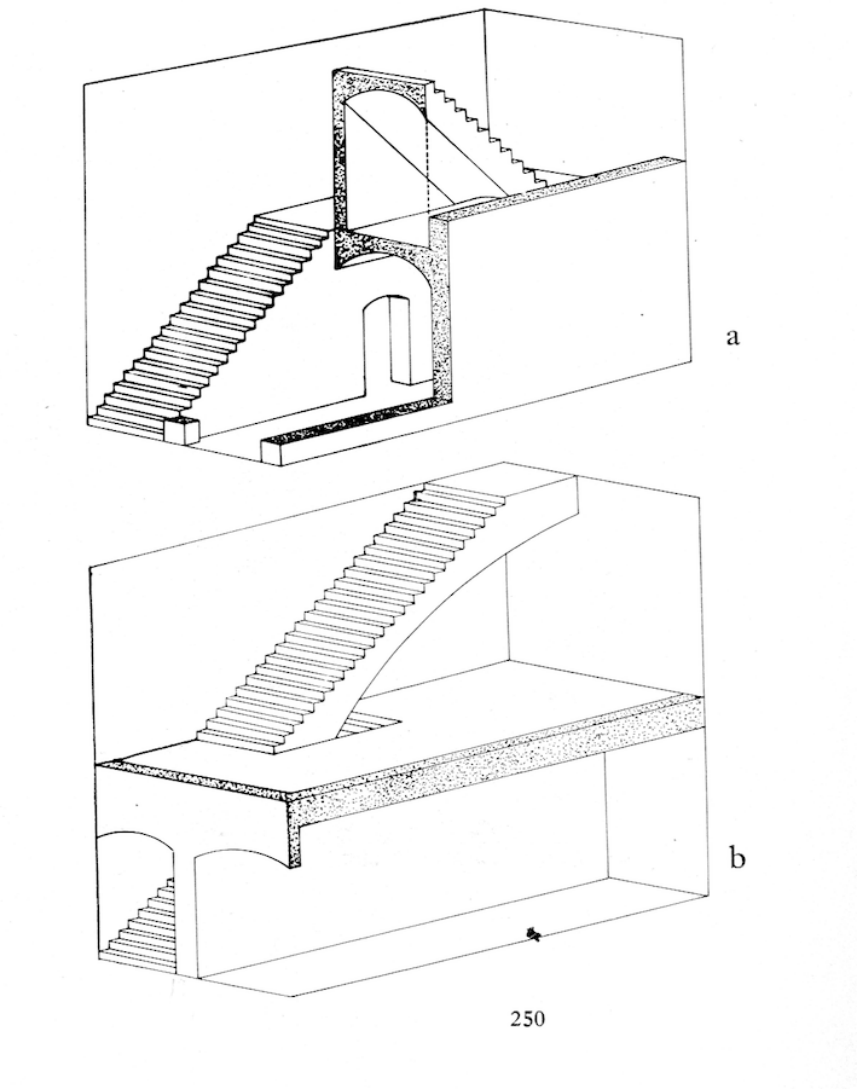

Figure 35. Drawing of the different kinds of stairs at Ostia. After Packer 1971.

Figure 36. Brick steps inside a cell of the Caseggiato del Larario. Photo by the author.

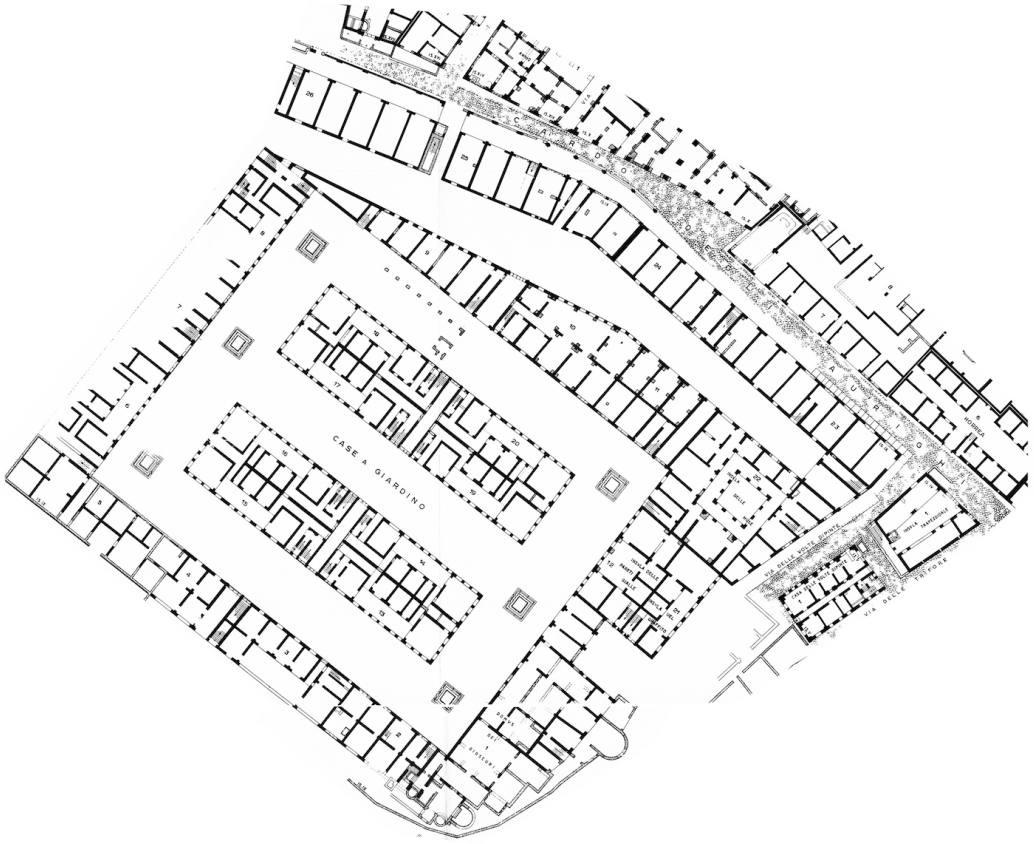

Figure 37. Plan of the Case a Giardino complex (III.ix.1–24). After *Scavi di Ostia* vol. 1.

Figure 38. Plan of the houses in the northeast corner of the Garden House complex. After *Scavi di Ostia* vol. 1.

Figure 39. Secondary doorways inside the House of the Graffito. Photo by the author.

Figure 40. View of the House of the Muses staircase. Photo by the author.

Figure 41. Front entrance to the House of the Muses. Photo by the author.

Figure 42. View of the interior rooms of the House of the Yellow Walls, seen from the entrance. Photo by the author.

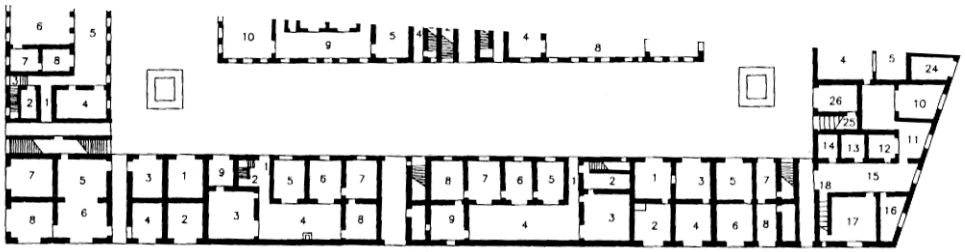

Figure 43. Plan of the southern shops in the outer ring of the Garden Houses complex. After Cervi 1998.

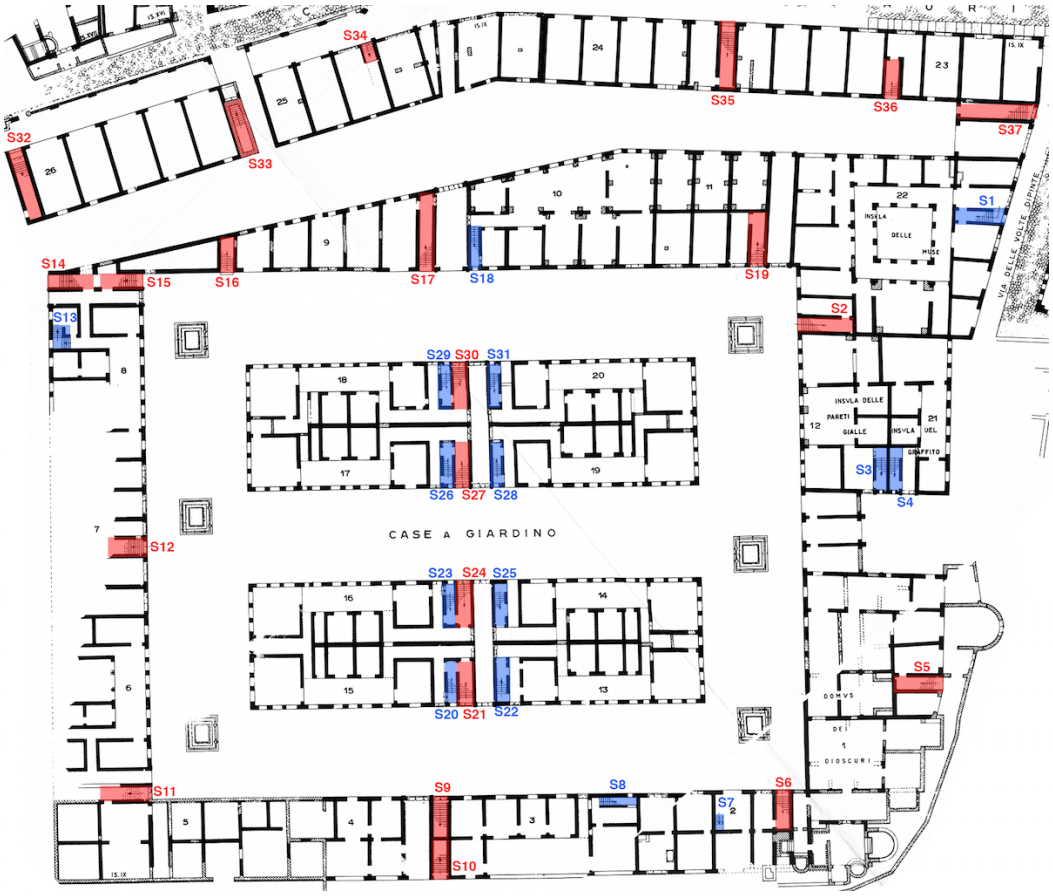

Figure 44. Plan of the Garden Houses complex with stairs numbered and highlighted. Traditionally internal stairs are blue, external are red. After *Scavi di Ostia* vol. 1.

Figure 45. Plan of the forum area with two stairs highlighted. After *Scavi di Ostia* vol. 1.

Figure 46. Photo of Stair 1 from Fig. 3.11. Photo by the author.

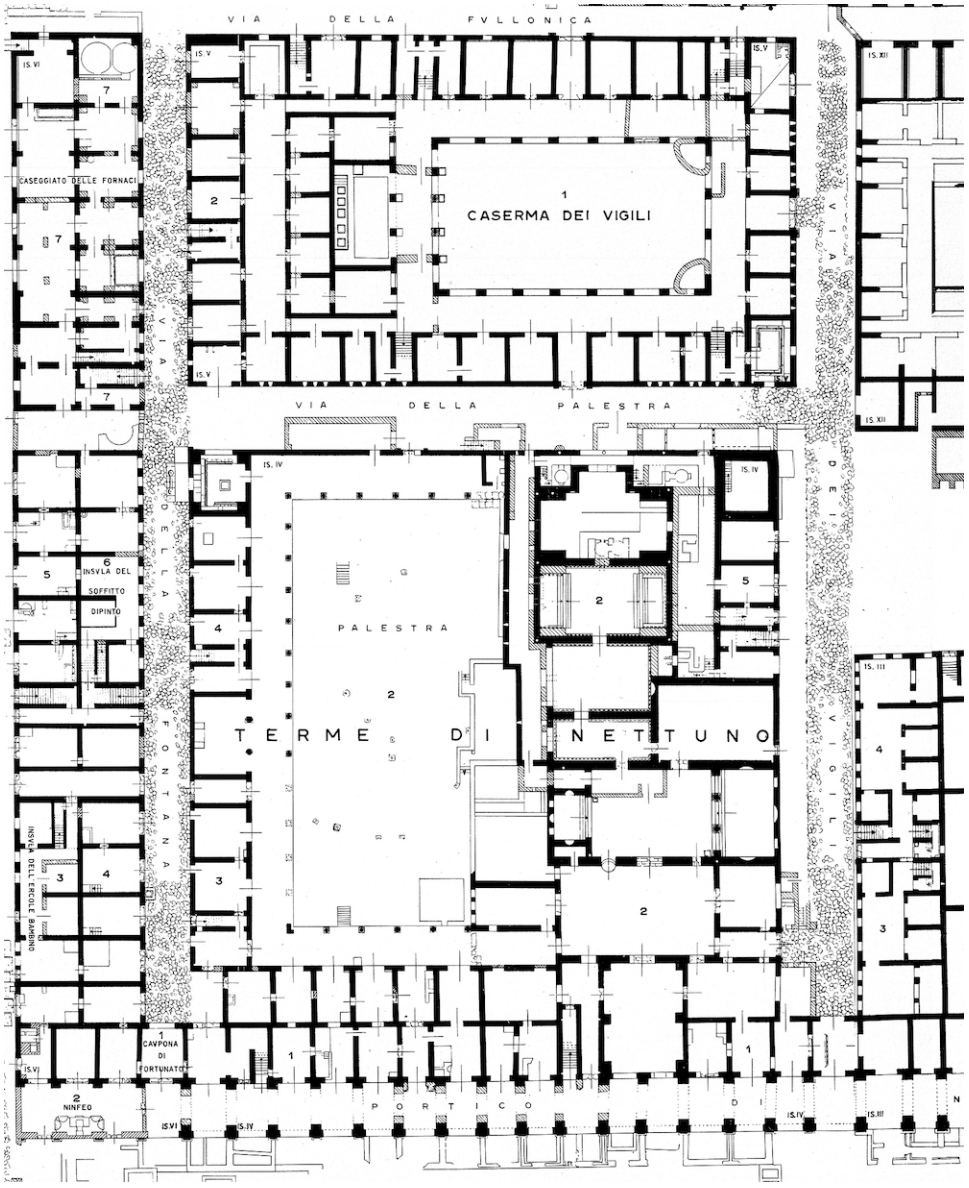

Figure 47. Plan of the Baths of Neptune complex. After *Scavi di Ostia* vol. 1.

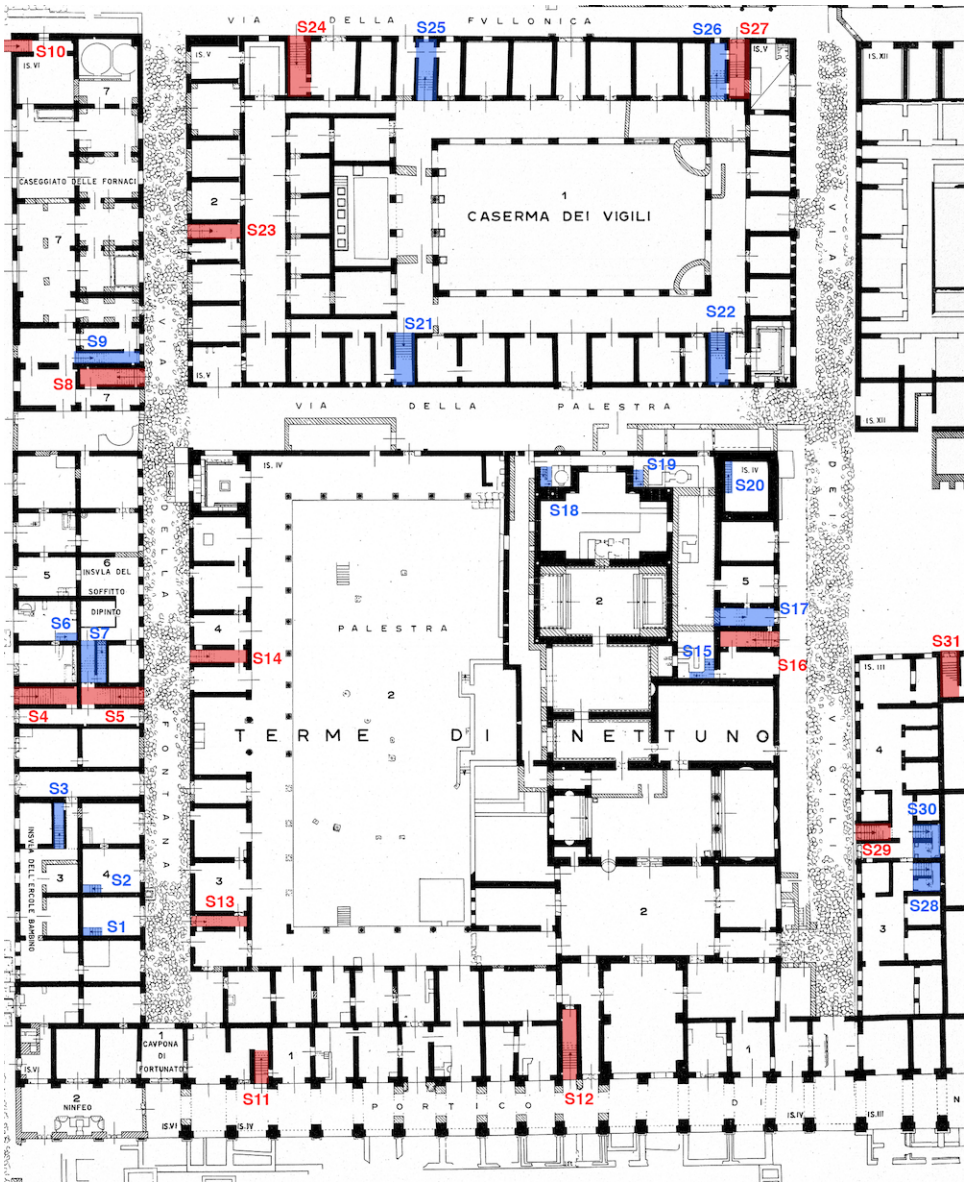

Figure 48. Plan of the Baths of Neptune complex with staircases numbered and highlighted. Blue are traditional internal stairs, red are external. After *Scavi di Ostia* vol. 1.

Figure 49. Stairwell in the House of the Muses. Photo by the author.

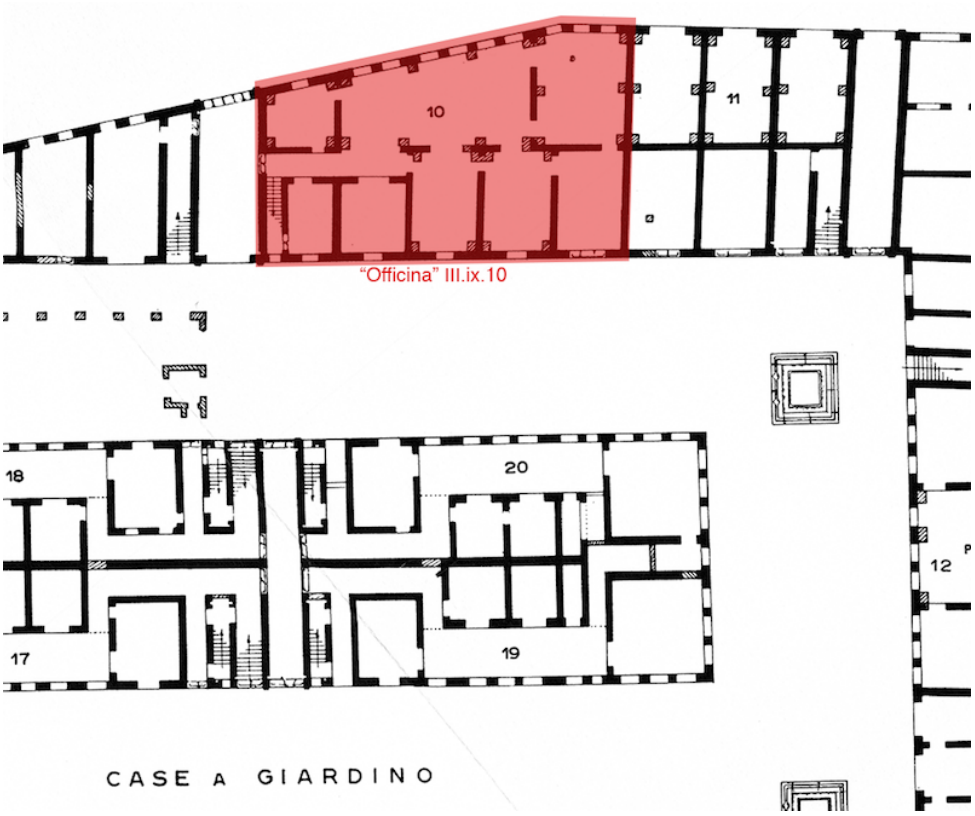

Figure 50. Plan of the north end of the outer ring, with the "officina" III.ix.10 highlighted. After *Scavi di Ostia* vol. 1.

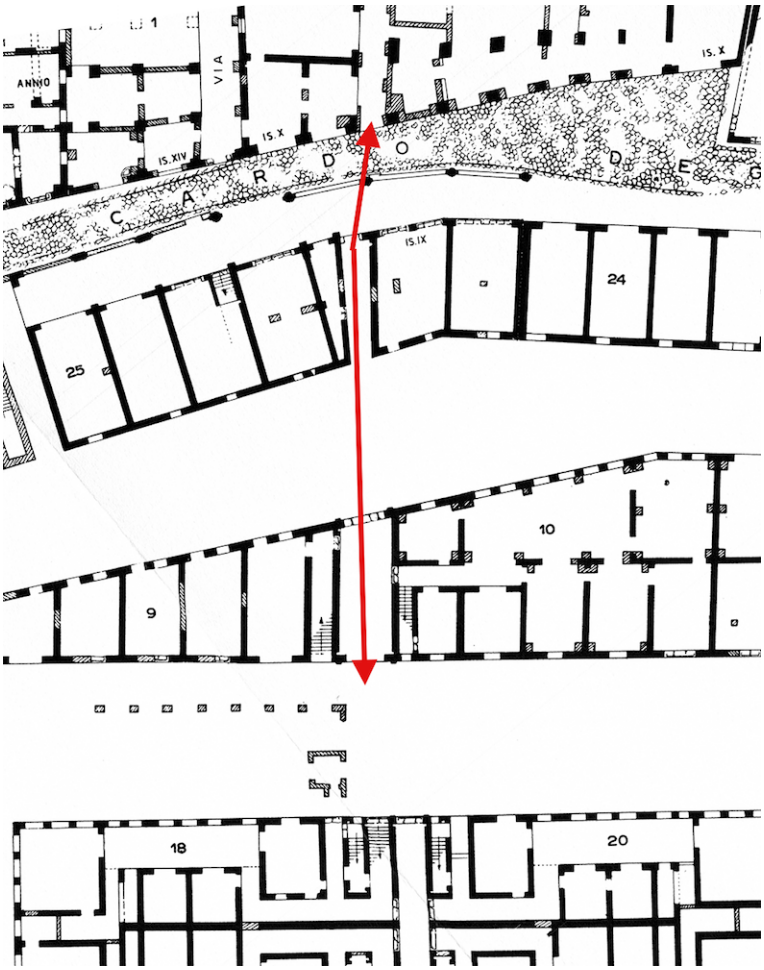

Figure 51. Path of movement from the northern entrance to the Garden Houses. After *Scavi di Ostia* vol. 1.

Figure 52. Front façade of the Horrea Epagathiana, showcasing travertine blocks on doorway entrances. Photo by the author.

Figure 53. Building façade along the street to the east of the Forum Baths, facing north. Photo by the author.

Figure 54. Photo of same façade facing head on (to the west), focusing on the visual distinction between entrances. Photo by the author.

Figure 55. Stone decorated stairways on the southeastern corner of the Baths of Mithras. Photo by the author.

Figure 56. Staircases on the northeast corner of the same street and building. Photo by the author.

Figure 57. Decorated staircase in the Caseggiato a Botteghe (V.i.1). Photo by the author.

Figure 58. View of the Via di Annio, facing North. Photo by the author.

Figure 59. Interior staircase near the entrance to the Caseggiato dei Triclini. Photo by the author.

Figure 60. Rear staircase in the Caseggiato dei Triclini. Photo by the author.

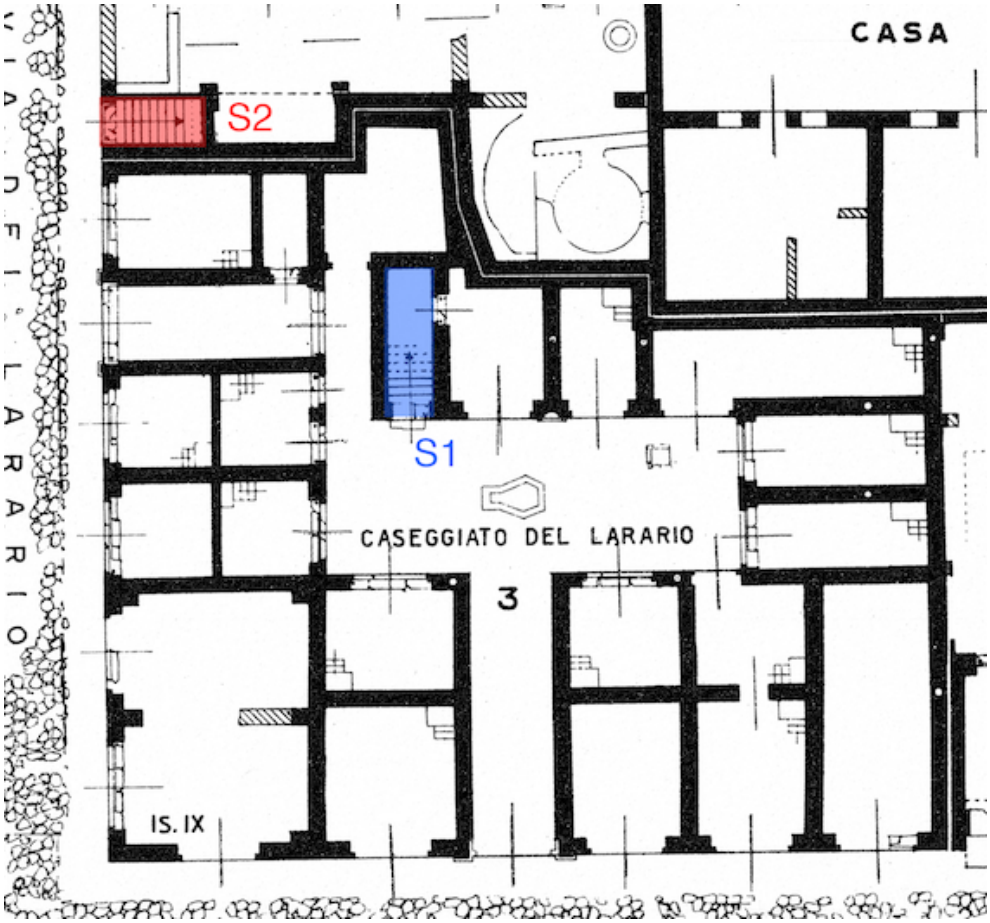

Figure 61. Two staircases in the Caseggiato del Larario highlighted. Blue for internal, red for external. After *Scavi di Ostia* vol. 1.

Figure 62. View of the interior of the Caseggiato del Larario, facing East. Photo by the author.

Figure 63. Blocked interior staircase in the Caseggiato del Larario. Photo by the author.

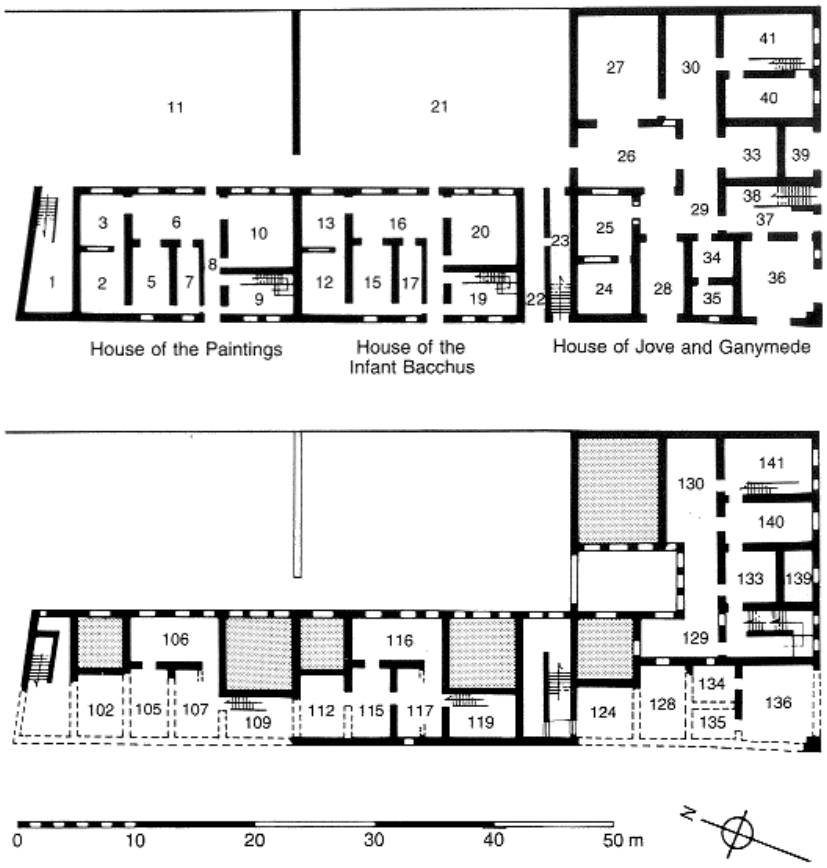

Figure 64. Plan of the House of Diana and its neighbors, after DeLaine 1995.

Figure 65. Paired staircases in the House of Diana. Photo by the author.

Figure 66. Close-up of same entrance pair, showing that one is a staircase and one a corridor. Photo by the author.

Figure 67. Monumentalized north entrance to the Case a Giardino complex. Photo by the author.

Figure 68. View of the central courtyard from the northern entrance. Photo by the author.

Figure 69. View down the central corridor of the central apartments in the Garden houses complex. Note the identical travertine springers. Photo by the author.

Figure 70. Northeast corner of the central courtyard in the Garden Houses. Photo by the author.

Figure 71. Quasi-internal staircase of the forum portico. Photo by the author.

Figure 72. Threshold of the same staircase in the forum portico. Photo by the author.

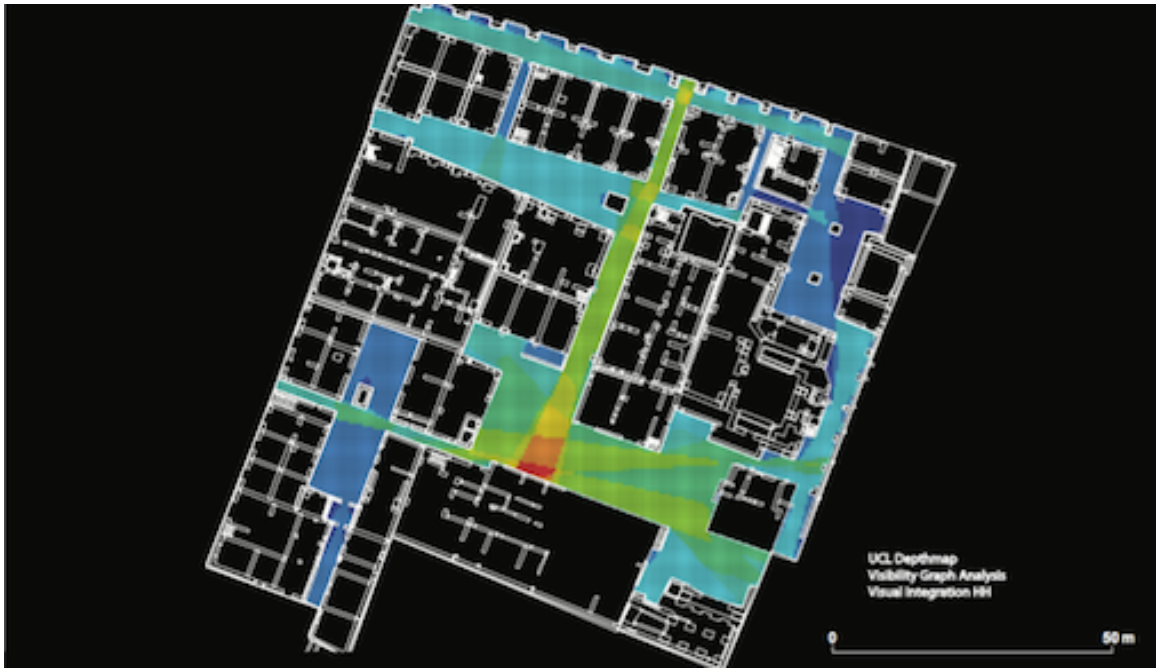

Figure 73. Example of an isovist "heat map," after Stöger 2011.

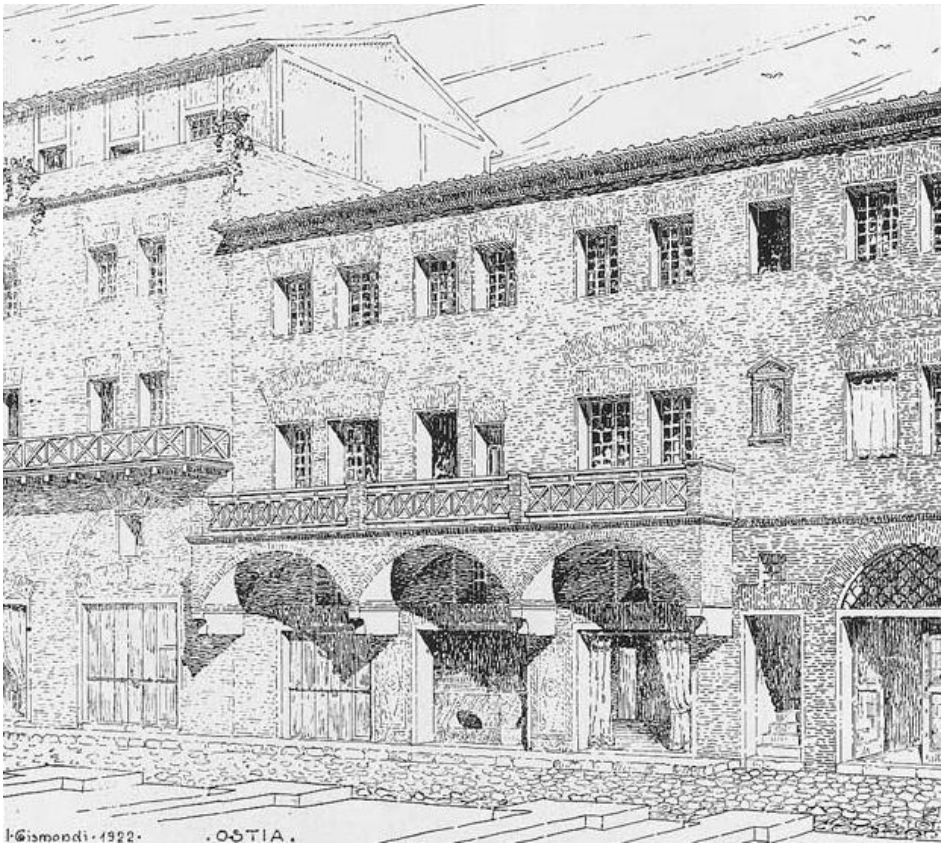

Figure 74. Gismondi etching of a reconstructed Ostian apartment building.

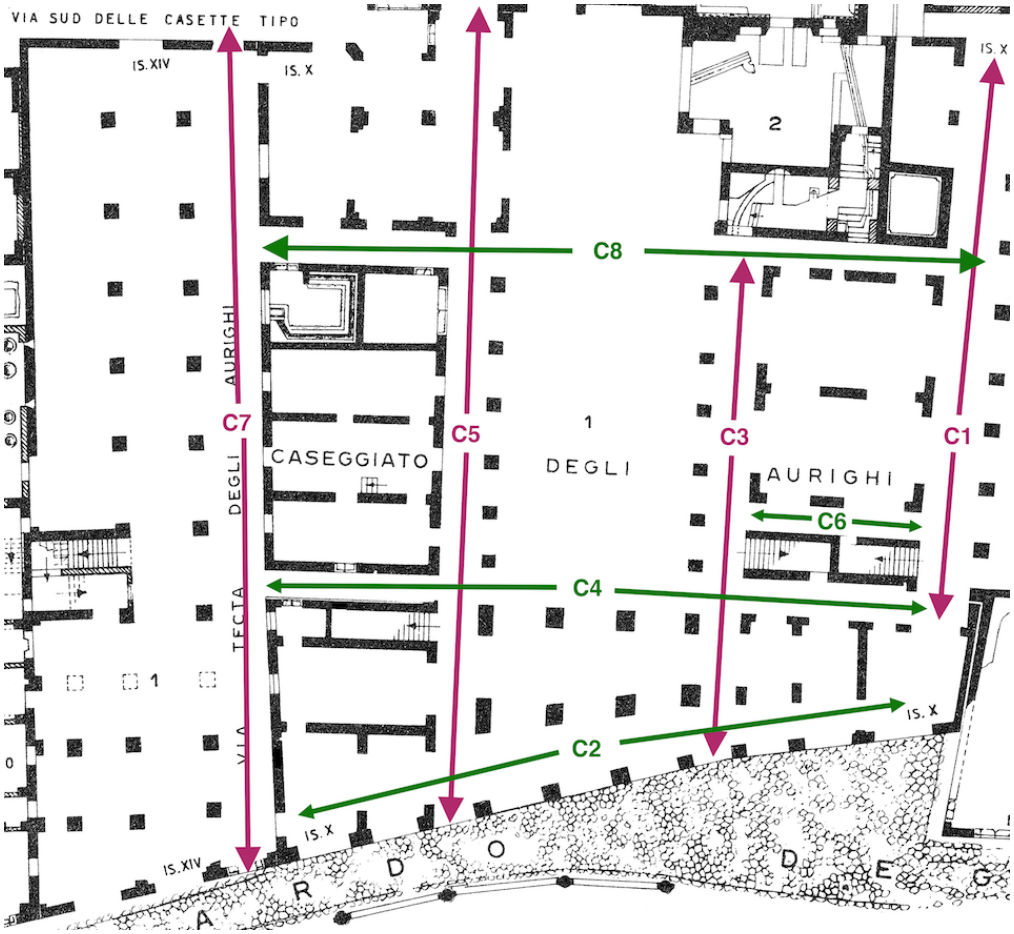

Figure 75. Plan of the Aurighi Building with the corridors highlighted. After *Scavi di Ostia* vol. 1.

Figure 76. View of the entrance to corridor 5, from the North entrance to the Garden Houses. Photo by the author.

Figure 77. Plan of the Cardo degli Aurighi, with two architectural awkwardnesses highlighted. After *Scavi di Ostia* vol. 1.

Figure 78. View looking East down the Cardo degli Aurighi where it runs in front of the Aurighi Building. Photo by the author.

Figure 79. Photo of the ground-level discrepancies along the Cardo degli Aurighi, as it sits in front of the Aurighi Building.

Figure 80. Similar photo of ground-level changes along the Cardo degli Aurighi to the east of the Aurighi Building, facing East. Photo by the author.

Figure 81. Looking down the Cardo degli Aurighi facing West, with the façade of the Aurighi Building in the distance. Photo by the Author.

Figure 82. Façade of the Aurighi Building, facing West. Photo by the Author.

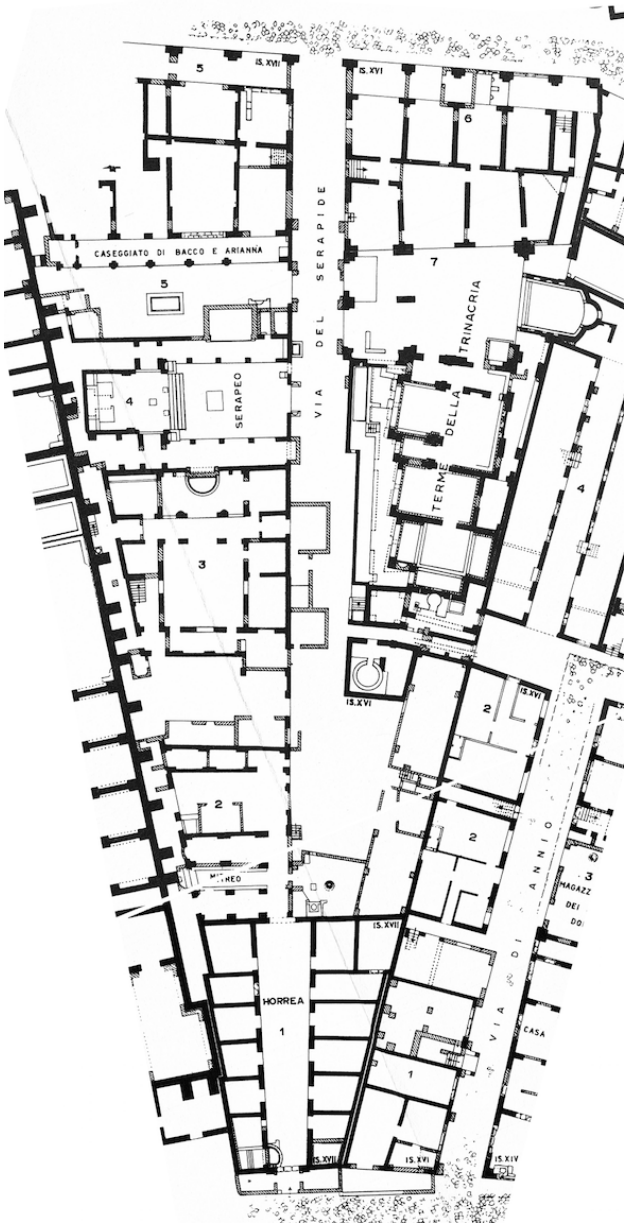

Figure 83. Plan of the Triangle Block. After *Scavi di Ostia* vol. 1.

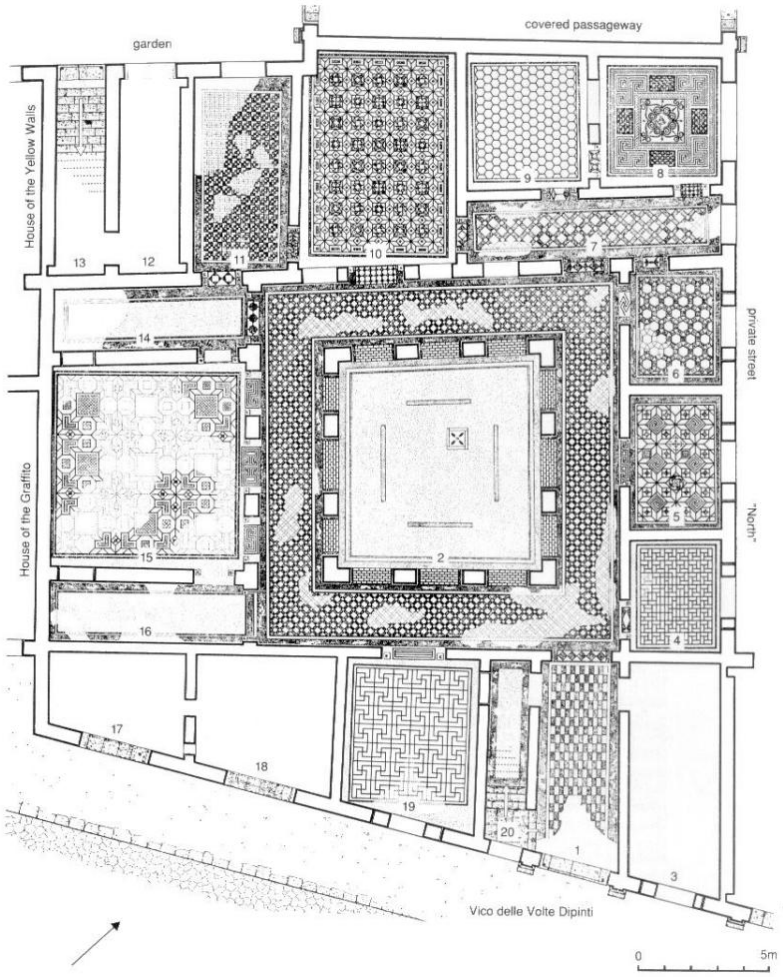

Figure 84. Plan of the House of the Muses. After Clarke 1991.

Figure 85. Low window sill facing Room 8 of the House of the Muses, from the "private street" in the Garden Houses. Photo by the author.

Figure 86. Photo of a more typical window of the north façade of the Outer Ring in the Garden Houses. Photo by the author.

Figure 87. Photo of the windows in the northeast apartment in the Central Apartments in the Garden House complex. Photo by the author.

Figure 88. View of the façade of the Insula delle Volte Dipinte. Photo by the author.

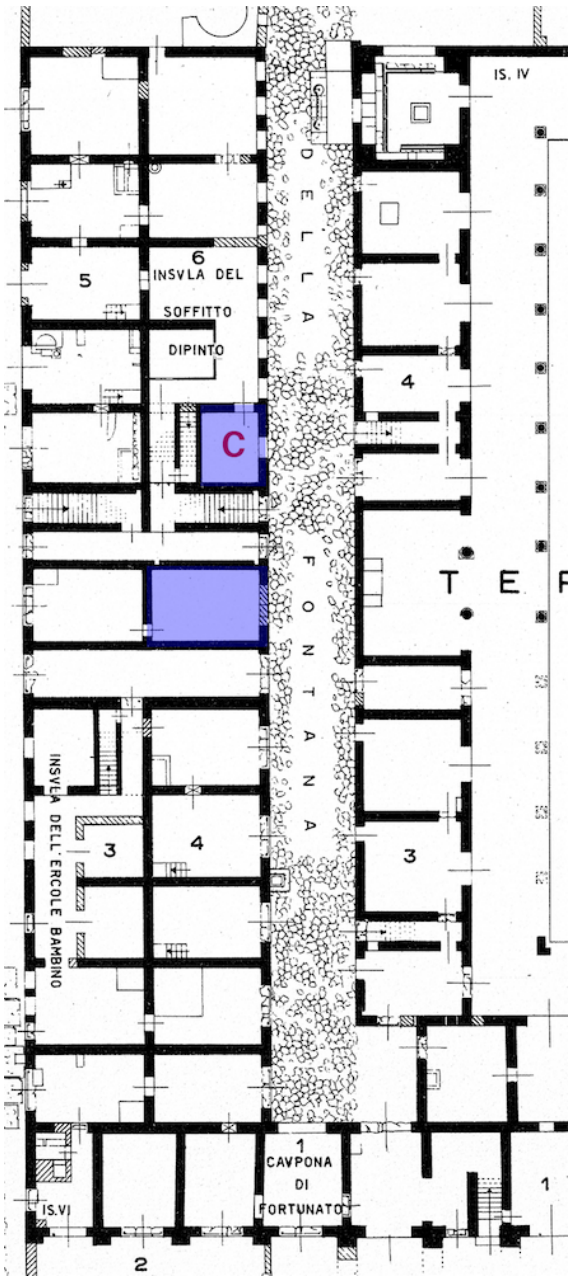

Figure 89. Plan of the insula to the west of the Baths of Neptune complex, with the rooms highlighted from Vaglieri's excavations. After *Scavi di Ostia* vol. 1.

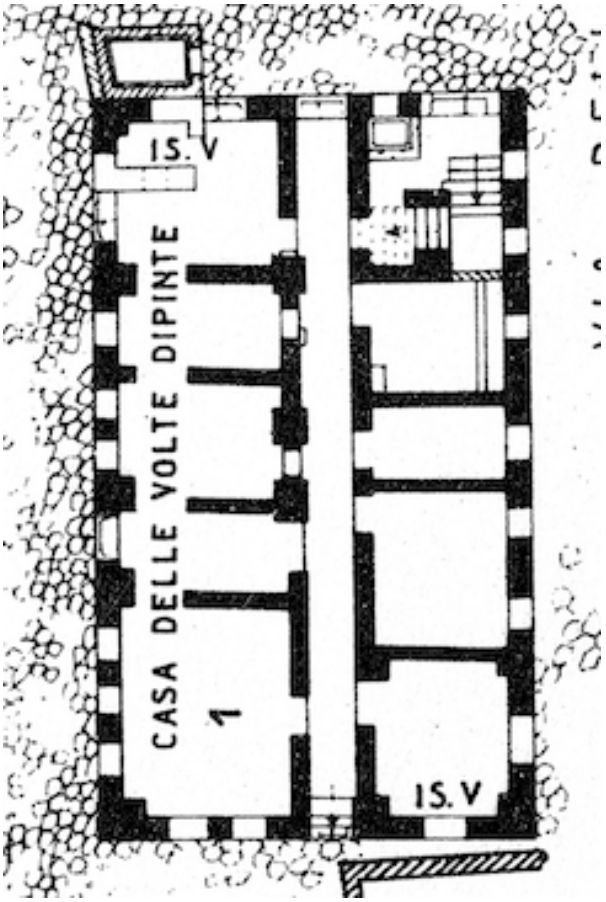

Figure 90. Plan of the House of the Painted Vaults. After *Scavi di Ostia* vol. 1.

Figure 91. Photo of the House of the Painted Vaults. Photo by the author.

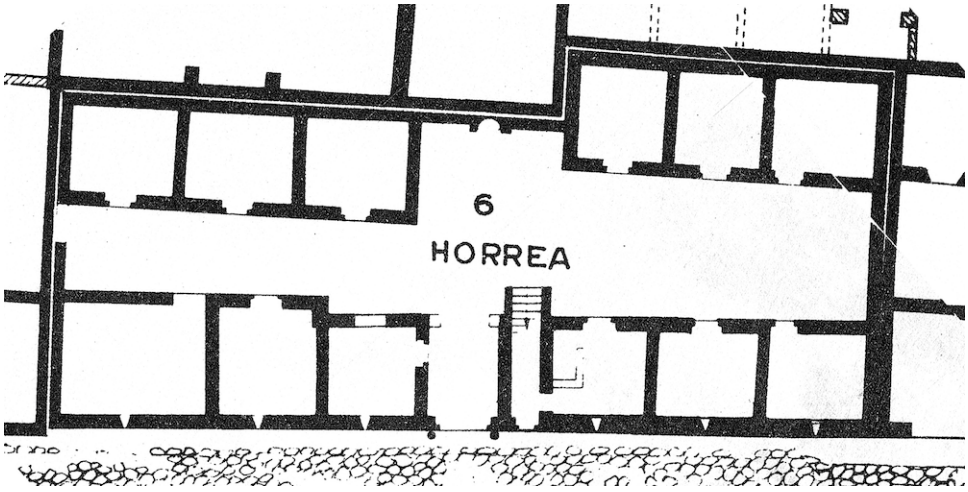

Figure 92. Plan of the Horrea III.ii.6. After *Scavi di Ostia* vol. 1.

Figure 93. Loophole windows on the façade of the III.ii.6 warehouse. Photo by the author.

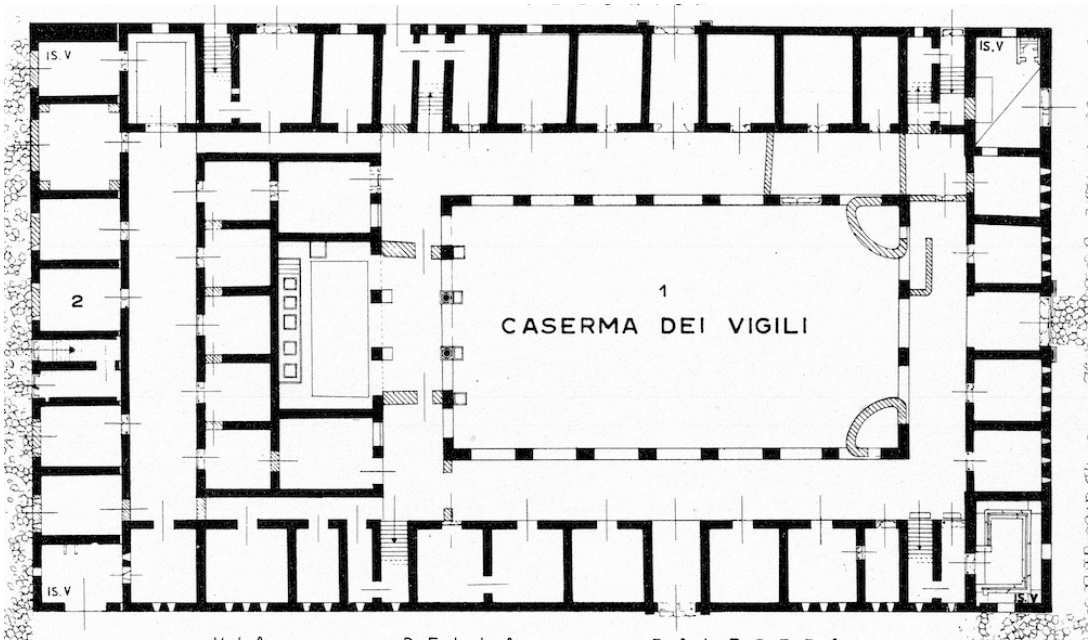

Figure 94. Plan of the Caserma dei Vigili. After *Scavi di Ostia* vol. 1.

Figure 95. Interior view of the Caserma dei Vigili courtyard. Photo courtesy UT Art and Art History Visual Resources Collection.

Figure 96. Interior *Augusteum* in the Caserma dei Vigili. Photo courtesy UT Art and Art History Visual Resources Collection.

Figure 97. Loopholes on the podium of the Ostia Capitolium. Photo by the author.

Figure 98. Close-up of a single loophole from the Capitolium. Photo by the author.

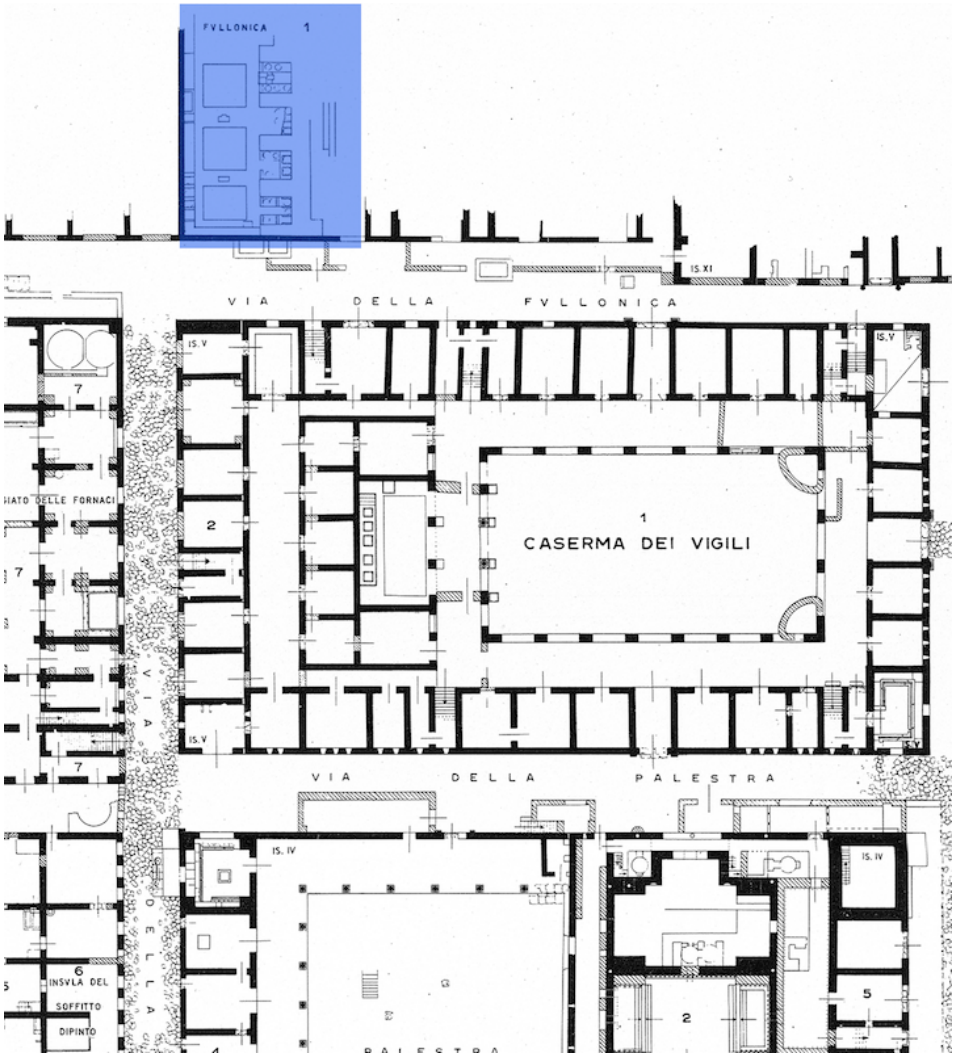

Figure 99. Plan of the area around the Caserma dei Vigili, highlighting the *fullonica* to its north. After *Scavi di Ostia* vol. 1.

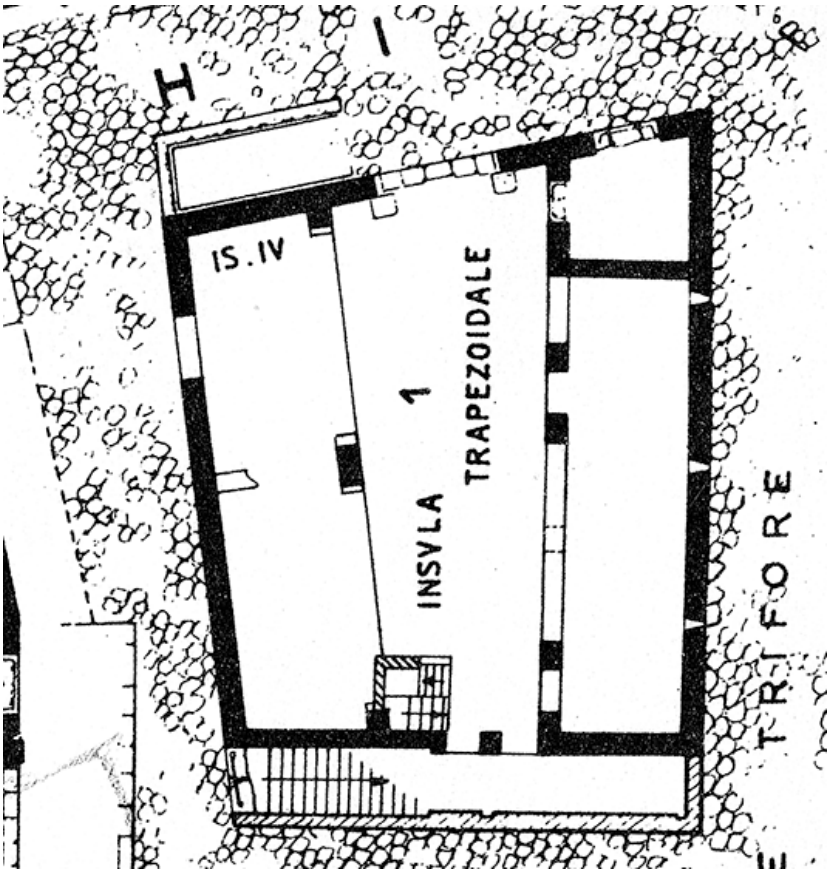

Figure 100. Plan of the Insula Trapezoidale. After *Scavi di Ostia* vol. 1.

Figure 101. Loopholes on the East side of the Insula Trapezoidale. Photo by the author.

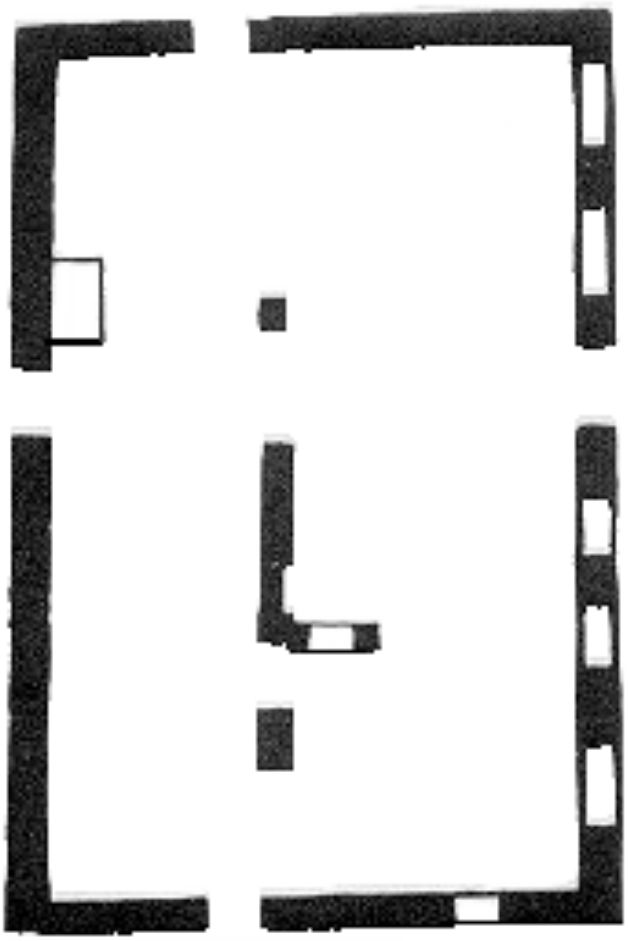

Figure 102. Plan of the Trajanic bar III.i.10. After *Scavi di Ostia* vol. 1.

Figure 103. Photo of the III.i.10 bar, from the interior facing East. Photo by the author.

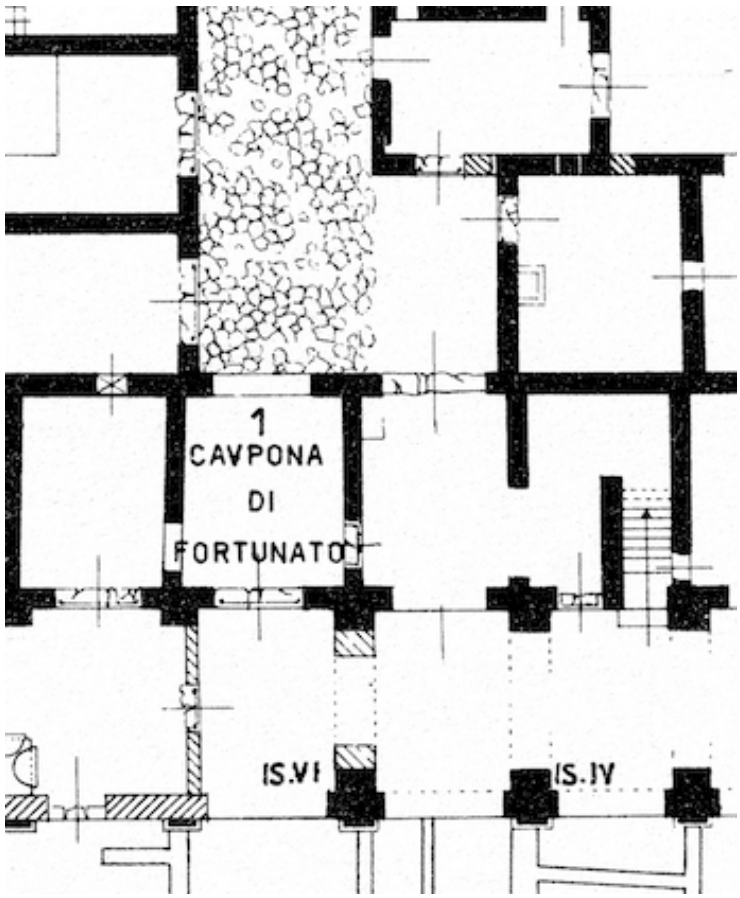

Figure 104. Plan of the Caupona di Fortunato. After *Scavi di Ostia* vol. 1.

Figure 105. Photo of the Caupona di Fortunato. Photo by the author.

Figure 106. Labeled plan of the Aurighi Building. After *Scavi di Ostia* vol. 1.

Figure 107. View up Stair 3 of the Aurighi Building. Photo by the author.

Figure 108. View from the landing of S3 of the Aurighi Building. Photo by the author.

Figure 109. Doorway on the north side of the S3 landing in the Aurighi Building. photo by the author.

Figure 110. Doorway on the south side of the S3 landing in the Aurighi Building. Photo by the author.

Figure 111. Evidence of a "blocking mechanism" in the wall of a staircase in the III.xiv block. Photo by the author.

Figure 112. Stair 1 in the Aurighi Building. Photo by the author.

Figure 113. Stair 2 in the Aurighi Building. Photo by the author.

Figure 114. Interior walls of the S1/S2 stairwell in the Aurighi Building. Photo by the author.

Figure 115. Mosaic remnants in the reconstructed upper floors in the transitional zone of the Aurighi Building. Photo by the author.

Figure 116. West façade of the Aurighi Building, facing north along the Via Tecta degli Aurighi. Photo by the author.

Figure 117. West façade of the Aurighi Building facing south along the Via Tecta degli Aurighi. Photo by the author.

Figure 118. View south into the transitional zone of the Aurighi Building from the III.i complex. Photo by the author.

Figure 119. East façade of the Aurighi Building, facing west from the Cardo degli Aurighi. Photo by the author.

Figure 120. Corridor 8 of the Aurighi Building, facing east toward the Sacello delle Tre Navate. Photo by the author.

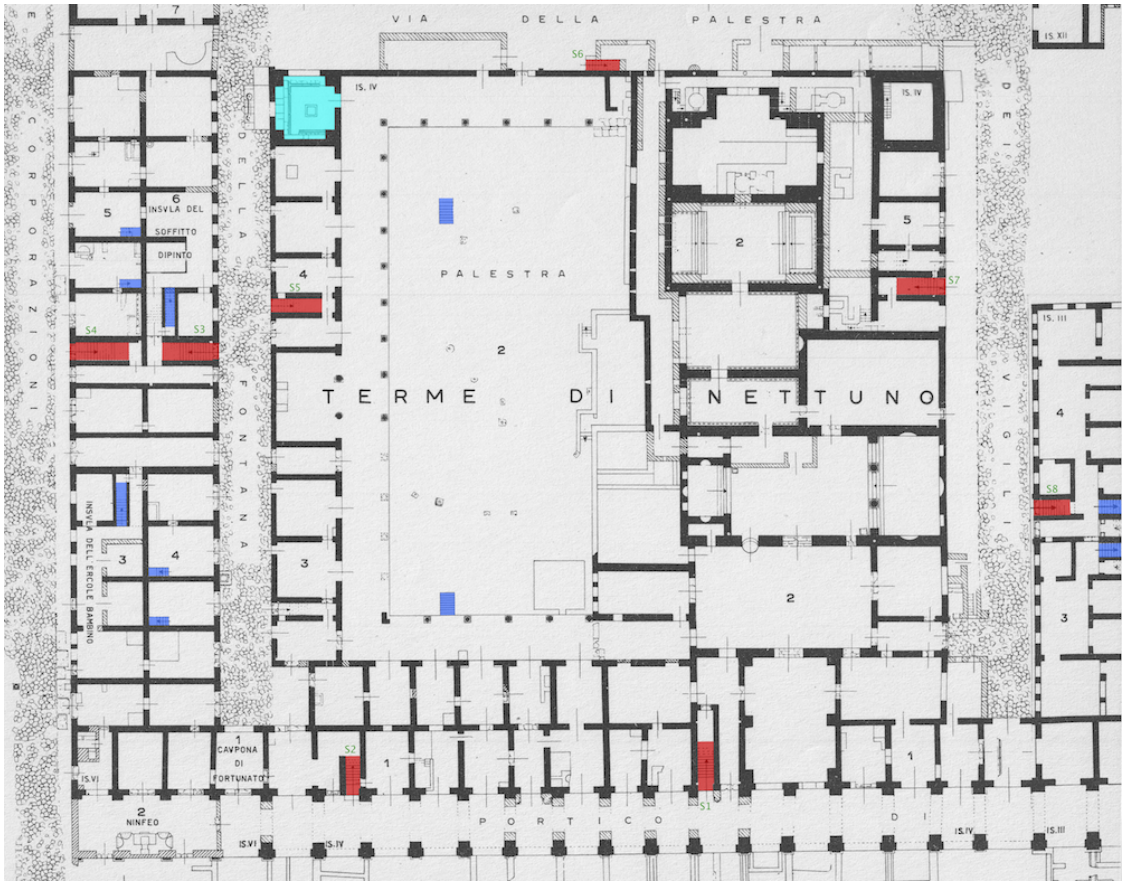

Figure 121. Labeled plan of the Baths of Neptune complex, latrine in cyan. After *Scavi di Ostia* vol. 1.

Figure 122. Latrine in the Forum Baths highlighted in cyan. After *Scavi di Ostia* vol. 1.

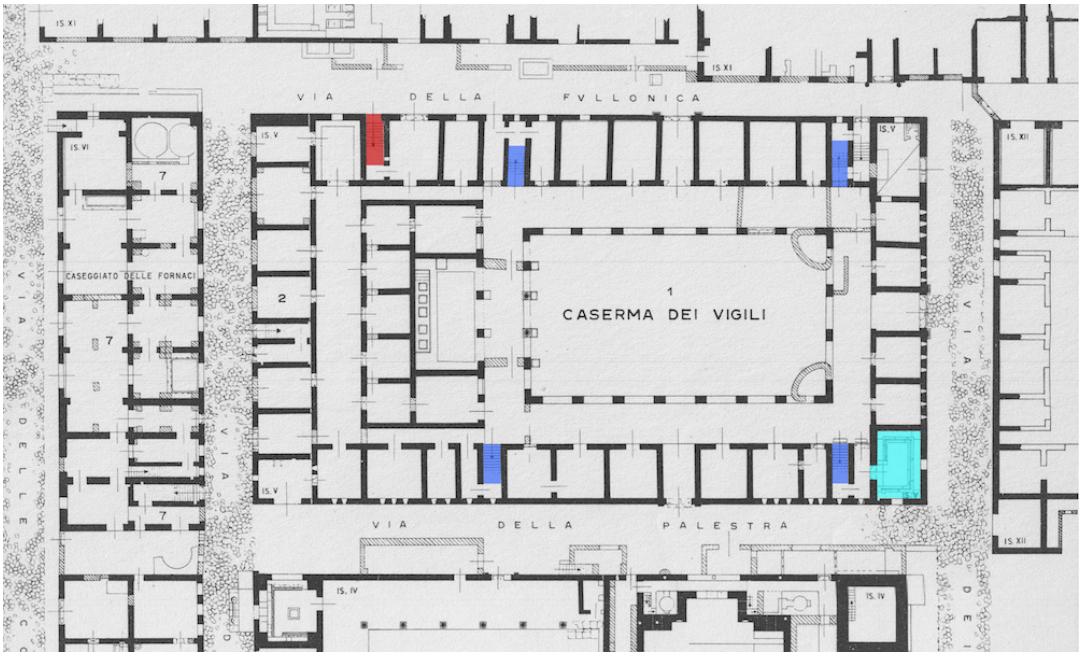

Figure 123. Plan of the Caserma dei Vigili, latrine in cyan. After *Scavi di Ostia* vol. 1.

Bibliography

Adam, J.P. 1994. *Roman Building: Materials and Techniques*. Translated by A. Mathews. Bloomington: Indiana University Press.

Allen, J. 2000. "On Georg Simmel: Proximity, Distance, and Movement." In *Thinking Space*, edited by M. Crang, and N. Thrift. London: Routledge: 54-70.

Allison, P.M. 1999. *The Archaeology of Household Activities*. London: Routledge.

Anderson, M. 2011. "Disruption or Continuity? The Spatio-Visual Evidence of Post Earthquare Pompeii." In *Pompeii: Art, Industry and Infrastructure*, edited by E. Poehler *et al.* London: Oxbow: 74-87.

Ando, Y. 1998. *Architectural Acoustics: Blending Sound Sources, Sound Fields, and Listeners*. New York: Springer.

Andrews, J.N. 2006. "The Use and Development of Upper Floors in Houses At Herculaneum." Ph.D. dissertation, University of Reading.

Ankerl, G. 1981. *Experimental Sociology of Architecture: A Guide to Theory, Research, and Literature*. New York: Mouton.

Baatz, D. 1991. "Fensterglastypen, Glasfenster und Architektur." In *Bautechnik der Antike: Internationales Kolloquium in Berlin Vom 15.–17. Februar 1990*, Berlin: von Zabern Verlag: 4-13.

Bacon, E.N. 1976. *Design of Cities*. Revised edition. New York: Penguin Books.

Bergmann, B. 1994. "The Roman House as Memory Theater: The House of the Tragic Poet in Pompeii." *The Art Bulletin* 76: 225-256.

Betts, E. 2011. "Towards a Multisensory Experience of Movement in the City of Rome." In *Rome, Ostia, Pompeii: Movement and Space*, edited by R. Laurence, and D. Newsome. Oxford: Oxford University Press: 118-132.

Blake, M.E., and D.T. Bishop. 1973. *Roman Construction in Italy From Nerva Through the Antonines.* Philadelphia: American Philosophical Society.

Bloch, H. 1947. *I Bolli Laterizi e La Storia Edilizia Romana*. Roma: Comune di Roma, Ripartizione antichità e belle arti.

———. 1959. "The Serapeum of Ostia and the Brick-Stamps of 123 A.D.: A New Landmark in the History of Roman Architecture." *American Journal of Archaeology* 63: 225-240.

Boersma, J.S., and T.L. Heres. 1985. *Amoenissima Civitas: Block V.ii At Ostia: Description and Analysis of Its Visible Remains*. Assen, The Netherlands: Van Gorcum.

Bollmann, B. 1998. *Römische Vereinshäuser: Untersuchungen Zu Den Scholae der Römischen Berufs-, Kult- und Augustalen-Kollegien in Italien*. Mainz: Verglag Philip von Zabern.

Bonaiuto, M., and M. Bonnes. 2000. "Social-Psychological Approaches in Environment-Behavior Studies: Identity Theories and the Discursive Approach." In *Theoretical Perspectives in Environment-Behavior Research*, edited by S. Wapner *et al.* new york: Kluwer Academic: 67-78.

Bounds, M. 2004. *Urban Social Theory: City, Self, and Society*. Oxford: Oxford University Press.

Bourdieu, P. 1977. *Outline of a Theory of Practice*. Translated by R. Nice. Cambridge: Cambridge University Press.

———. 1990. *The Logic of Practice*. Translated by R. Nice. Stanford, Calif.: Stanford University Press.

Broadbent, G. *et al.* 1980. *Signs, Symbols, and Architecture*. New York: Wiley.

Broadbent, G. *et al.* 1980. *Meaning and Behaviour in the Built Environment*. New York: Wiley.

Bruun, C., and A. Gallina Zevi. 2002. *Ostia e Portus Nelle Loro Relazioni Con Roma: Atti del Convegno All'Institutum Romanum Finlandiae, 3 e 4 Dicembre 1999*. Roma: Istitutum Romanum Finlandiae.

Calza, G. 1923. "Le Origini Latine dell'Abitazione Moderna." *Architettura e Arti Decorative* 3: 3-18.

———. 1925. "La Preeminenza dell'Insula nell'Edilizia Romana." *Monumenti Antichi* 23: 541-608.

———. 1929. "La Casa Romana." *Capitolium* 5: 521-531.

———. 1953. *Topografia Generale*. Vol. 1 of *Scavi Di Ostia*. Roma: Libreria dello Stato.

Campbell, J. 1989. "Place as Social and Geographical." In *Commonplaces: Essays on the Nature of Place*, edited by D.W. Black *et al.* New York: University Press of America: 67-79.

Canter, D. 2000. "Seven Assumptions for an Investigative Environmental Psychology." In *Theoretical Perspectives in Environment-Behavior Research*, edited by S. Wapner *et al.* New York: Kluwer Academic: 191-206.

Carlson, L.A. *et al.* 2010. "Getting Lost in Buildings." *Current Directions in Psychological Science* 19: 284-289.

Carter, H. 1983. *An Introduction to Urban Historical Geography*. London: Edward Arnold.

Casey, E.S. 1997. *The Fate of Place: A Philosophical History*. Berkeley: University of California Press.

Castello, L. 2010. *Rethinking the Meaning of Place: Conceiving Place in Architecture-Urbanism*. Burlington, VT: Ashgate.

Castells, M. 1977. *The Urban Question*. Translated by A. Sheridan. London: Edward Arnold.

Cervi, R. 1998. "Evoluzione Architettonica Delle Cosidette 'Case a Giardino' ad Ostia." In *Citta e Monumenti Nell'Italia Antica*, edited by L. Quilici, and S. Quilici Gigli. Roma: "L'Erma" di Bretschneider: 141-156.

Clark, M. 2012. "Achieving Memorable Places: 'Urban Sense of Place' for Successful Urban Planning and Renewal?" In *Making Sense of Place: Multidiscipinary Perspectives*, edited by I. Convery *et al.* Woodbridge: Boydell Press: 119-132.

Clarke, J.R. 1975. "Kinesthetic Address and the Influence of Architecture on Mosaic Composition in Three Hadrianic Bath Complexes At Ostia Antica." *Architectura* 5: 1-17.

———. 1991. *Houses of Roman Italy, 100 BC – AD 250: Ritual, Space, and Decoration*. Berkeley: University of California Press.

———. 2006. "High and Low: Mocking Philosophers in the Tavern of the Seven Sages, Ostia." In *The Art of Citizens, Soldiers, and Freedmen in the Roman World*, edited by E. D'Ambra, and G.P.R. Métraux. Oxford: Archaeopress: 47-57.

———. 2013. "Domus/Single Family House." In *A Companion to Roman Architecture*, edited by R. Ulrich, and C. Quenemoen. London: Blackwell: 343-362.

Coarelli, F. 2007. *Rome and Environs: An Archaeological Guide*. Translated by J. Clauss and D. Harmon. Berkeley: University of California Press.

Cornell, T., and K. Lomas, eds. 1995. *Urban Society in Roman Italy*. London: UCL Press.

Crang, M., and N. Thrift, eds. *Thinking Space*. London: Routledge.

Craver, S.E. 2010. "Patterns of Complexity: An Index and Analysis of Urban Property Investment At Pompeii." Ph.D. dissertation, University of Virginia.

Cresswell, T. 2004. *Place: A Short Introduction*. Malden, MA: Blackwell.

D'Arms, J.H. 1998. "Between Public and Private: The *Epulum Publicum* and Caesar's *Horti Trans Tiberim*." In *Horti Romani*, edited by M. Cima, and E.L. Rocca. Roma: L'Erma di Bretschneider: 33-43.

Davies, P.J.E. 2000. *Death and the Emperor: Roman Imperial Funerary Monuments, From Augustus to Marcus Aurelius*. Cambridge: Cambridge University Press.

de Certeau, M. 1988. *The Practice of Everyday Life*. Translated by S. Rendall. Berkeley: University of California Press.

DeLaine, J. 1995. "The Insula of the Paintings At Ostia I.4.2-4: Paradigm for a City in Flux." In *Urban Society in Roman Italiy*, edited by T. Cornell, and K. Lomas. London: UCL Press: 79-106.

———. 1996. "The Insula of the Paintings: A Model for the Economics of Construction in Hadrianic Ostia." In *Roman Ostia Revisited*, edited by A. Gallina Zevi, and A. Claridge. 165-184.

———. 1997. *The Baths of Caracalla: A Study in the Design, Construction, and Economics of Large-Scale Building Projects in Imperial Rome*. Portsmouth, R.I.: Journal of Roman Archaeology.

———. 1999. "Benefactions and Urban Renewal: Bath Buildings in Roman Italy." In *Roman Baths and Bathing*, edited by J. DeLaine, and D. Johnston. Portsmouth, RI: Journal of Roman Archaeology: 67-74.

———. 1999. "High Status Insula Apartments in Early Imperial Ostia — a Reading." *Mededelingen van het Nederlands Instituut te Rome* 58: 175-189.

———. 1999. "Introduction: Bathing and Society." In *Roman Baths and Bathing*, edited by J. DeLaine, and D.E. Johnston. Portsmouth, RI: Journal of Roman Archaeology: 7-16.

———. 2001. "Bricks and Mortar: Exploring the Economics of Building Techniques At Rome and Ostia." In *Economies Beyond Agriculture in the Classical World*, edited by D. Mattingly, and J. Salmon. London: Routledge: 230-268.

———. 2002. "Building Activity in Ostia in the Second Century AD." In *Ostia e Portus Nelle Loro Relazioni Con Roma*, edited by C. Bruun, and A. Gallina Zevi. Rome: Institutum Romanum Finlandiae: 41-102.

———. 2003. "The Builders of Roman Ostia: Organisation, Status and Society." In *Proceedings of the First International Congress on Construction History, Madrid, January 2003*, edited by S. Huerta. Madrid: Reverte: 723-732.

———. 2004. "Designing for a Market: 'Medianum' Apartments At Ostia." *Journal of Roman Archaeology* 17: 147-176.

———. 2005. "The Commercial Landscape of Ostia." In *Roman Working Lives and Urban Living*, edited by A. Mac Mahon, and J. Price. Oxford: Oxbow Books: 29-47.

———. 2012. "Housing Roman Ostia." In *Contested Space: Houses and Temples in Roman Antiquity and the New Testament*, edited by D. Balch, and A. Weissenrieder. Tübinge: Mohr Siebeck: 327-354.

DeLaine, J., and D. Johnston, eds. *Roman Baths and Bathing.* Journal of Roman Archaeology Supplementary Series 37. Portsmouth, RI: Journal of Roman Archaeology.

Descoeudres, J.-P., ed. *Ostia: Port e Porte de la Rome Antique: Catalogue de l'Exposition a Musée Rath, Genève.* Genève: Georg Editeur.

Dickmann, J.-A. 2010. "Space and Social Relations in the Roman West." In *A Companion to Families in the Greek and Roman Worlds*, edited by B. Rawson. London: Blackwell: 53-72.

Donahue, J.F. 2004. *The Roman Community at Table During the Principate*. Ann Arbor: University of Michigan Press.

Dovey, K. 1999. *Framing Places: Mediating Power in Built Form*. London: Routledge.

———. 2010. *Becoming Places: Urbanism/Architecture/Identity/Power*. London: Routledge.

———. 2011. "Uprooting Critical Urbanism." *City* 15: 347-354.

Duff, C. 2010. "On the Role of Affect and Practice in the Production of Place." *Environment and Planning D: Society and Space* 28: 881-895.

Dyson, S.L. 1992. *Community and Society in Roman Italy*. Baltimore: Johns Hopkins University Press.

Eco, U. 1997. "Function and Sign: The Semiotics of Architecture." In *Rethinking Architecture: A Reader in Cultural Theory*, edited by N. Leach.

Ellis, Simon. 2000. *Roman Housing*. London: Duckworth.

Ellis, Steven. 2011. "*Pes Dexter*: Superstition and the State in the Shaping of Shpfronts and Street Activity in the Roman World." In *Rome, Ostia, Pompeii: Movement and Space*, edited by R. Laurence, and D. Newsome. 160-173.

Fagan, G.G. 1999. *Bathing in Public in the Roman World*. Ann Arbor: University of Michigan Press.

Falletti Maj, B.M. 1960. "Ostia — La Casa Delle Volte Dipinte: Contributo All'Edilizia Privata Imperiale." *Bollettin d'Arte* 45: 45-65.

Fanselow, M.S. *et al.* 2014. "Isomorphisms Between Psychological Processes and Neural Mechanisms: From Stimulus Elements to Genetic Markers of Activity." *Neurobiology of Learning and Memory* 108: 5-13.

Fant, C.J. 2009. "Bars With Marble Surfaces At Pompeii: Evidence for Sub-Elite Marble Use." *The Journal of Fasti Online* 159: 1-10.

Favro, D.G. 1996. *The Urban Image of Augustan Rome*. New York: Cambridge University Press.

Fisher, K.D. 2009. "Placing Social Interaction: An Integrative Approach to Analyzing Past Built Environments." *Journal of Anthropological Archaeology* 28: 439-537.

Frier, B. 1977. "The Rental Market in Early Imperial Rome." *Journal of Roman Studies* 67: 27-37.

Gehl, J. 1987. *Life Between Buildings: Using Public Space*. New York: Van Nostrand Reinhold.

Gering, A. 2002. "Die Case a Giardino als Unerfüllter Architektentraum." *RM* 109: 109-140.

Gessert, G. 2001. "Urban Spaces, Public Decoration, and Civic Identity in Ancient Ostia." Ph.D. dissertation, Yale University.

Giddens, A. 1979. *Central Problems in Social Theory: Action, Structure, and Contradiction in Social Analysis*. Berkeley: University of California Press.

———. 1984. *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley: University of California Press.

Gleason, K.L., and M. Palmer. 2013. "Synthesis and Interpretation: The Garden as a Built Environment." In *Sourcebook on Garden Archaeology*, edited by A.-A. Malek. Bern: Peter Lang AG: 277-315.

Goffman, E. 1963. *Behavior in Public Places; Notes on the Social Organization of Gatherings.* New York: Free Press of Glencoe.

———. 1974. *Frame Analysis: An Essay on the Organization of Experience*. Cambridge, Mass.: Harvard University Press.

Goldberg, S. 1998. "Plautus on the Palatine." *Journal of Roman Studies* 88: 1-20.

Gottdiener, M., and A.P. Lagopoulos. 1986. *The City and the Sign: An Introduction to Urban Semiotics*. New York: Columbia University Press.

Grahame, M. 2000. *Reading Space: Social Interaction and Identity in the Houses of Roman Pompeii: A Syntactical Approach to the Analysis and Interpretation of Built Space*. Vol. 886 of British Archaeological Reports Ltd.

Gregory, D. 1993. "Interventions in the Historical Geography of Modernity: Social Theory, Spatiality, and the Politics of Representation." In *Place/Culture/ Representation*, edited by J. Duncan, and D. Ley. London: Routledge: 272-313.

Hamilakis, Y. 2014. *Archaeology and the Senses: Human Experience, Memory, and Affect*. Camridge: Cambridge University Press.

Hartnett, J. 2008. "Si Quis Hic Sederit: Streetside Benches and Urban Society in Pompeii." *American Journal of Archaeology* 112, no. 1 (2008): 91-119.

Heinzelmann, M. 2000. *Die Nekropolen von Ostia: Untersuchungen zu den Gräberstrassen Vor der Porta Romana und an der Via Laurentina*. München: F. Pfeil.

———. 2002. "Bauboom und Urbanistische Defizite — Zur Städtebaulichen Entwicklung Ostias Im 2. Jh." In *Ostia e Portus Nelle Loro Relazioni Con Roma*, edited by C. Bruun, and A. Gallina Zevi. Rome: Institutum Romanum Finlandiae: 103-122.

Herbert, D.T., and C.J. Thomas. 1990. *Cities in Space: City as Place*. Savage, MD: Barnes and Noble.

Heres, T.L. 1982. *Paries: a Proposal for a Dating System of Late-Antique Masonry Structures in Rome and Ostia*. Amsterdam: Rodopi.

———. 1992. "La Storia Edilizia Delle Terme Dei Sette Sapienti (Iii.x.2) AD Ostia Antica: Uno Studio Peliminare." *Mededelingen van het Nederlands Instituut te Rome* 51: 76-113.

Hermansen, G. 1981. *Ostia: Aspects of Roman City Life*. Edmonton: University of Alberta Press.

Hillier, B. 1996. *Space is the Machine: A Configurational Theory of Architecture*. Cambridge: Cambridge University Press.

———. 2008. "Space and Spatiality: What the Built Environment Needs From Social Theory." *Building Research and Information* 36: 216-230.

———. 2012. "Studying Cities to Learn About Minds: Some Possible Implications of Space Syntax for Spatial Cognition." *Environment and Planning B* 39: 12-32.

Hillier, B., and J. Hanson. 1984. *The Social Logic of Space*. Cambridge: Cambridge University Press.

Hillier, B., and A. Penn. 2004. "Rejoinder to Carlo Ratti." *Environment and Planning B: Planning and Design* 31: 501-511.

Holleran, C. 2011. "The Street Life of Ancient Rome." In *Rome, Ostia, Pompeii: Movement and Space*, edited by D. Newsome, and R. Laurence. Oxford: Oxford University Press: 245-261.

Hölscher, C. *et al.* 2005. "Finding the Way Inside: Linking Architectural Design Analysis and Cognitive Processes." In *Spatial Cognition IV. Reasoning, Action, and Interaction: International Conference Spatial Cognition 2004, Frauenchiemsee, Germany*, edited by C. Freska, *et al.* New York: Springer: 1-23.

———. 2006. "Up the Down Staircase: Wayfinding Strategies in Multi-Level Buildings." *Journal of Environmental Psychology* 26: 284-299.

———. 2009. "Adaptivity of Wayfinding Strategies in a Multi-Building Ensemble: The Effects of Spatial Structure, Task Requirements, and Metric Information." *Journal of Environmental Psychology* 29: 208-219.

Ingold, T. 2000. *Perception of the Environment: Essays on Livelihood, Dwelling and Skill.* London: Routledge.

Jansen, G.C.M. 1993. "Paintings in Roman Toilets." In *Functional and Spatial Analysis of Wall Painting: Proceedings of the Fifth International Congress on Ancient Wall Painting, Amsterdam, 8-12 September 1992*, edited by E. Moormann. Leiden: Stichting BABESCH: 29–33.

Jessop, B. *et al.* 2008. "Theorizing Sociospatial Relations." *Environment and Planning D: Society and Space* 26: 389-401.

Joyce, H. 1981. *The Decoration of Walls, Ceilings, and Floors in Italy in the Second and Third Centuries A.D.* Roma: Giorgio Bretschneider.

Kaiser, A. 2012. "Cart Traffic Flow in Pompeii and Rome." In *Rome, Ostia, Pompeii: Movement and Space*, Oxford: Oxford University Press: 174-193.

Kent, S. 1990. "A Cross-Cultural Study of Segmentation, Architecture, and the Use of Space." In *Domestic Architecture and the Use of Space*, edited by S. Kent. Cambridge: Cambridge University Press: 127-152.

———. 1990. "Activity Areas and Architecture: An Interdisciplinary View of the Relationship Between Use of Space and Domestic Built Environments." In *Domestic Architecture and the Use of Space*, edited by S. Kent. Cambridge: Cambridge University Press: 1-8.

Kitchin, R., and P. Hubbard. 2010. *Key Thinkers on Space and Place.* Second edition. London: SAGE.

Krampen, M. 1979. *Meaning in the Urban Environment*. London: Pion.

Krasner, L. 1979. *Environmental Design and Human Behavior: A Psychology of the Individual in Society*. New York: Pergamon Press.

Laird, M. 2015. *Civic Monuments and the Augustales in Roman Italy*. Cambridge: Cambridge University Press.

Landzelius, M. 2001. "Contested Representations: Signification in the Built Environment." *American Journal of Semiotics* 17: 139-199.

Laurence, R. 2007. *Roman Pompeii: Space and Society*. *2nd* ed. London: Routledge.

———. 2013. "Streets and Facades." In *A Companion to Roman Architecture*, edited by R.B. Ulrich, and C.K. Quenemoen. London: Blackwell: 399-411.

Laurence, R., and D.J. Newsome, eds. *Rome, Ostia, Pompeii: Movement and Space*. Oxford: Oxford University Press.

Lefebvre, H. 2000. *The Production of Space*. Translated by D. Nicholson-Smith. Oxford: Blackwell.

———. 2003. *The Urban Revolution*. Translated by R. Bononno. Minneapolis: University of Minnesota Press.

Leutgeb, S. *et al.* 2005. "Place Cells, Spatial Maps and the Population Code for Memory." *Current Opinion in Neurobiology* 15: 738-746.

Liggett, H. 2003. *Urban Encounters*. Minneapolis: University of Minnesota Press.

Light, A., and J.M. Smith. 1998. *Philosophies of Place*. Lanham: Rowman & Littlefield.

Ling, R. 1990. "A Stranger in Town: Finding the Way in an Ancient City." *Greece & Rome* 37: 204-214.

Lott, J.B. 2004. *The Neighborhoods of Augustan Rome*. Cambridge: Cambridge University Press.

Lynch, K. 1990. *City Sense and City Design: The Writings and Projects of Kevin Lynch*. Edited by T. Bannerjee, and M. Southworth. Cambridge, MA: MIT Press.

MacDonald, W.L. 1965. *The Architecture of the Roman Empire Volume 1: An Introductory Study*. New Haven: Yale University Press.

———. 1988. *The Architecture of the Roman Empire Volume 2: An Urban Appraisal*. New Haven: Yale University Press.

Malek, A.-A. 2013. "Wilhelmina F. Jashemski and the Gardens of the Roman Empire." In *Sourcebook for Garden Archaeology*, edited by A.-A. Malek. Bern: Peter Lang AG: 41-58.

Malmberg, S. 2008. "Finding Your Way in the Suburra." In *TRAC 2008: Proceedings of the Eighteenth Annual Theoretical Roman Archaeology Conference*, edited by M. Driessen *et al.* Oxford: Oxbow Books: 39-51.

Malpas, J. 1998. "Finding Place: Spatiality, Locality, and Subjectivity." In *Philosophies of Place*, edited by A. Light, and J.M. Smith. Lanham: Rowman & Littlefield: 21-44.

———. 1999. *Place and Experience: A Philosophical Topography*. Cambridge: Cambridge University Press.

———. 2012. "Putting Space in Place: Philosophical Topography and Relational Geography." *Environment and Planning D: Society and Space* 30: 226-242.

Mandoki, K. 1998. "Sites of Symbolic Density: A Relativistic Approach." In *Philsophies of Place*, edited by A. Light, and J.M. Smith. Lanham: Rowman & Littlefield: 73-96.

Meiggs, R. 1973. *Roman Ostia*. Second edition. Oxford: Clarendon Press.

Meilinger, T. *et al.* 2007. "How Much Information Do You Need? Schematic Maps in Wayfinding and Self Localisation." In *Spatial Cognition V: Reasoning, Action, Interaction*. New York: Springer: 381-400.

Merleau-Ponty, M. 2002. *Phenomenology of Perception*. Translated by D. Landes. London: Routledge.

Merrifield, A. 2000. "Henfri Lefebvre: A Socialist in Space." In *Thinking Space*, edited by M. Crang, and N. Thrift. London: Routledge: 167-182.

Merriman, P. 2012. *Mobility, Space, and Culture*. London: Routledge.

Michelson, W. 2000. "Linking Built Environments to Everyday Life: Assumptions, Logic, and Specifications." In *Theoretical Perspectives in Environment-Behavior Research*, edited by S. Wapner *et al.* New York: Kluwer Academic: 141-149.

Mols, S.T.A.M. 1997. "Pittura Parietale ad Ostia Antica nel suo Contesto: Il Caseggiato Del Serapide." *Ocnus* 5: 173-180.

———. 1999. "Decorazione e Uso Dello Spazio a Ostia: Il Caso dell'Insula III.x (Caseggiato Del Serapide, Terme Dei Sette Sapienti E Caseggiato Degli Aurighi)." *Mededelingen van het Nederlands Instituut te Rome* 58: 247-386.

———. 1999. "La Vita Privata Attraverso Lo Studio Delle Decorazioni Parietali." *Mededelingen van het Nederlands Instituut te Rome* 58: 165-173.

———. 2007. "The Urban Context of the Serapeum at Ostia." *BABESCH* 82: 227-232.

Montello, D.R. 2007. "The Contribution of Space Syntax to a Comprehensive Theory of Environmental Psychology." In *Proceedings of the 6th International Space Syntax Symposium, Istanbul, 2007*, edited by A.S. Kubat: iv.1-iv.11.

Moore, K.D. 2000. *Culture, Meaning, Architecture: Critical Reflections on the Work of Amos Rapoport.* Burlington, VT: Ashgate.

Moser, E.I. *et al.* 2008. "Place Cells, Grid Cells, and the Brain's Spatial Representation System." *Annual Review of Neuroscience* 31: 69-89.

Murdoch, J. 2005. *poststructuralist Geography: A Guide to Relational Space*. London: SAGE Publications.

Newsome, D.J. 2008. "Centrality in Its Place: Defining Urban Space in the City of Rome." In *TRAC 2008: Proceedings of the Eighteenth Annual Theoretical Roman Archaeology Conference*, edited by M. Driessen *et al.* Oxford: Oxbow Books: 25-38.

———. 2009. "Traffic, Space and Legal Change Around the Casa del Marinaio at Pompeii (Vii 15.1-2)." *BABESCH* 84: 121-142.

———. 2011. "Introduction: Making Movement Meaningful." In *Rome, Ostia, Pompeii: Movement and Space*, edited by R. Laurence, and D. Newsome. Oxford: Oxford University Press: 1-54.

O'Sullivan, T. 2011. *Walking in Roman Culture*. Cambridge: Cambridge University Press.

Packer, J. 1971. *The Insulae of Imperial Ostia*. Volume 31 of *Memoirs of the American Academy in Rome*. Rome: American Academy in Rome.

Painter, J. 2000. "Pierre Bourdieu." In *Thinking Space*, edited by M. Crang, and N. Thrift. London: Routledge: 239-259.

Pallasmaa, J. 1996. "The Geometry of Feeling: A Look At the Phenomenology of Architecture." In *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, edited by K. Nesbitt. New York: Princeton Architectural Press: 447-455.

Parker, S. 2004. *Urban Theory and the Urban Experience: Encountering the City*. London: Routledge.

Parsons, T. 1978. *Action Theory and the Human Condition*. New York: Free Press.

Pasini, F. 1978. *Ostia Antica: Insule e Classi Sociali: I e II Secolo dell'Impero*. Roma: Multigrafica editrice.

Pavolini, C. 1991. *La Vita Quotidiana a Ostia*. Bari: Editori Laterza.

———. 2006. *Ostia*. Guide Archeologiche Laterza. Roma: Laterza.

Pensabene, P. 2002. "Committenza Edilizia a Ostia tra la Fine del I e i Primi Decenni del III Secolo: lo Studio dei Marmi e della Decorazione Architettonica Come Strumento d'Indagine." *MEFRA* 114: 181-324.

Perring, D. 1992. "Spatial Organization and Social Change in Roman Towns." In *City and Country in the Ancient World*, edited by A. Wallace-Hadrill, and J. Rich. London: Routledge: 278-299.

Pirson, F. 1997. "Rented Accommodation at Pompeii: The Evidence of the Insula Arriana Polliana VI.6." In *Domestic Space in the Roman World: Pompeii and Beyond*, edited by R. Laurence, and A. Wallace-Hadrill. Portsmouth, RI: Journal of Roman Archaeology: 165-182.

Pirson, F., and C. Dorl-Klingenschmid. 1999. *Mietwohnungen in Pompeji und Herkulaneum: Untersuchungen Zur Architektur, Zum Wohnen und Zur Sozial- und Wirtschaftsgeschichte der Vesuvstädte*. München: Verlag Dr. F. Pfeil.

Prak, N.L. 1977. *The Visual Perception of the Built Environment*. Delft: Delft University Press.

Preucel, R.W. 2006. *Archaeological Semiotics*. Malden, MA: Blackwell.

Preziosi, D. 1978. *The Semiotics of the Built Environment: An Introduction to Architectonic Analysis*. Bloomington: Indiana University Press.

Raft, K.A. 2011. "Painted Decoration in the Apartments of Roman Ostia: Standardization, Social Status, and Visual Experience." Ph.D. Dissertation, University of Michigan.

Rand, G. 2000. "Space-Frames and Intercultural Studies of Person-Environment Relations." In *Theoretical Perspectives in Environment-Behavior Relations*, edited by S. Wapner *et al.* New York: Kluwer Academic: 277-288.

Ranganath, C. 2010. "Binding Items and Contexts: The Cognitive Neuroscience of Episodic Memory." *Current Directions in Psychological Science* 19: 131-137.

Rapoport, A. 1982. *The Meaning of the Built Environment: A Nonverbal Communication Approach*. Beverly Hills: Sage Publications.

———. 1990. "Systems of Activities and Systems of Settings." In *Domestic Architecture and the Use of Space : An Interdisciplinary Cross-Cultural Study*, edited by S. Kent. Cambridge: Cambridge University Press: 9-20.

———. 1994. "Spatial Organization and the Built Environment." In *Companion Encyclopedia of Anthropology*, edited by T. Ingold. London: Routledge: 460-502.

———. 2000. "Science, Explanatory Theory, and Envrionment-Behavior Studies." In *Theoretical Perspectives in Environment-Behavior Research*, edited by S. Wapner *et al.* New York: Kluwer Academic: 107-140.

Ratti, C. 2004. "Space Syntax: Some Inconsistencies." *Environment and Planning B: Planning and Design* 31: 487-499.

——— 2004. "Rejoinder to Hillier and Penn." *Environment and Planning B: Planning and Design* 31: 513-516.

Relph, E.C. 1976. *Place and Placelessness*. London: Pion.

Rettinger, M. 1977. *Acoustic Design and Noise Control*. New York: Chemical Pub. Co.

Reynolds, P.K.B. 1926. *The Vigiles of Imperial Rome*. London: Oxford University Press.

Richardson, A. 1992. "Caseggiato Degli Aurighi." Ph.D. dissertation, Vrije Universiteit Amsterdam.

Riggsby, A.M. 1997. "'Public' and 'Private' in Roman Culture: The Case of the Cubiculum." *Journal of Roman Archaeology* 10: 36-56.

———. 2009. "Space." In *The Cambridge Companion to the Roman Historians*, edited by A. Feldherr. Cambridge: Cambridge University Press: 152-165.

Robinson, O.F. 1994. *Ancient Rome: City Planning and Administration*. London: Routledge.

Rose, P. 2005. "Remapping Ostia: A Systematic Study of the Urban Landscape of Ostia From the 2nd to the 4th Century A.D." Ph.D. dissertation, University of Reading.

Rossi, A. 1982. *The Architecture of the City*. Cambridge, MA: MIT Press.

Sablayrolles, R. 1996. *Libertinus Miles: Les Cohortes de Vigiles*. Volume 224 of *Collection De L'École Française De Rome*. Rome: École Française de Rome.

Salter & Associates Inc., C.M. 1998. *Acoustics: Architecture, Engineering, the Environment*. San Francisco: William Stout Publishers.

Samuels, K.L., and D.M. Totten. 2012. "Roman Place-Making: From Archaeological Interpretation to Contemporary Heritage Contexts." In *Making Roman Places, Past and Present*, edited by D. Totten, and K. Samuels. Portsmouth, RI: Journal of Roman Archaeology: 11-33.

Sanders, D. 1990. "Behavioral Conventions and Archaeology: Methods for the Analysis of Ancient Architecture." In *Domestic Architecture and the Use of Space: An Interdisciplinary Cross-Cultural Study*, edited by S. Kent. Cambridge: Cambridge University Press: 43-72.

Scagliarini Corlàita, D. 1995. "Le Grandi Insulae di Ostia come Integrazione tra Edilizia Residenziale e Infrastrutture Urbane." In *Splendida Civitas Nostra: Studi Archeologici in Onore Di Antonio Frova*, Roma: Edizioni Quasar: 171-181.

Scruton, R. 1979. *The Aesthetics of Architecture*. Princeton: Princeton University Press.

Seamon, D. 2000. "A Way of Seeing People and Place: Phenomenology in Environment-Behavior Research." In *Theoretical Perspectives in Environment-Behavior Research*, edited by S. Wapner *et al.* New York: Kluwer Academic: 157-178.

Senseney, J.R. 2013. "Plans, Measurement Systems, and Surveying: The Roman Technology of Pre-Building." In *A Companion to Roman Architecture*, edited by R.B. Ulrich, and C.K. Quenemoen. London: Blackwell: 140-156.

Sewell Jr, W.H. 1992. "A Theory of Structure: Duality, Agency, and Transformation." *American Journal of Sociology* 98: 1-29.

Shepherd, E.J., and P. Olivanti. 2008. "Giardini Ostiensi." *Bullettino della Commissione Archeologica Comunale di Roma (BullCom)* 109: 69-98.

Soja, E.W. 1989. *Postmodern Geographies: The Reassertion of Space in Critical Social Theory*. New York: Verso.

———. 2001. "In Different Spaces: Interpreting the Spatial Organization of Societies." In *Proceedings of the 3rd International Space Syntax Symposium, Atlanta 2001*, edited by J. Peponis *et al.* s1.1–s1.7.

Spurza, J. 1999. "A New Study of the Palazzo Imperiale At Ostia." Ph.D. dissertation, Princeton University.

Stevens, S. 2005. "Reconstructing the Garden Houses at Ostia: Exploring Water Supply and Building Height." *BABESCH* 80: 113-123.

Stock, B. 1993. "Reading, Community and a Sense of Place." In *Place/Culture/ Representation*, edited by J. Duncan, and D. Ley. London: Routledge: 324-328.

Stöger, H. 2007. "Monumental Entrances of Roman Ostia: Architecture with Public Associations and Spatial Meaning." *BABESCH* 82: 347-363.

———. 2011. "The Spatial Organization of the Movement Economy: The Analysis of Ostia's Scholae." In *Rome, Ostia, Pompeii: Space and Society*, edited by D. Newsome, and R. Laurence. Oxford: Oxford University Press: 215-242.

———. 2011. *Rethinking Ostia: A Spatial Enquiry into the Urban Society of Rome's Imperial Port-Town*. Leiden: Amsterdam University Press.

Stokols, D. 2000. "Theory Development in Environmental Psychology: A Prospective View." In *Theoretical Perspectives in Environment-Behavior Research*, edited by S. Wapner *et al.* New York: Kluwer Academic: 269-276.

Tatum, W.J. 1999. *The Patrician Tribune: Publius Clodius Pulcher*. Chapel Hill: University of North Carolina Press.

Taylor, R. 2003. *Roman Builders: A Study in Architectural Process*. Cambridge: Cambridge University Press.

———. 2010. "'Reading' Space in the Houses of Pompei's *Regio VI*." *Journal of Roman Archaeology* 15: 439-444.

Thrift, N.J. 2008. *Non-Representational Theory: Space, Politics, Affect*. New York: Routledge.

Tonkiss, F. 2005. *Space, the City and Social Theory*. Cambridge: Polity Press.

———. 2014. *Cities By Design: The Social Life of Urban Form*. Hoboken: Wiley-Blackwell.

Totten, D.M., and K.L. Samuels, eds. *Making Roman Places, Past and Present*. Volume 89 of *Journal of Roman Archaeology Supplementary Series*. Portsmouth, RI: Journal of Roman Archaeology.

Trifilò, F. 2011. "Public Architecture and Urban Living in the Roman City: The Example of the Forum of Timgad." *BABESCH* 86: 125-136.

Tuan, Y.-F. 1977. *Space and Place: The Perspective of Experience*. Minneapolis: University of Minnesota Press.

Ulrich, R.B. 2007. *Roman Woodworking*. New Haven: Yale University Press.

———. 2013. "Courtyard Architecture in the Insulae of Ostia Antica." In *A Companion to Roman Architecture*, edited by R. Ulrich, and C. Quenemoen. London: Blackwell: 324-341.

Ulrich, R.B., and C.K. Quenemoen, eds. *A Companion to Roman Architecture*. London: Blackwell.

Vaglieri, D. 1908. "[No Title]." *Notizie degli Scavi di Antichità* 1908: 21-24.

van Binnebeke, M.C. 1999. "Archaeology and Law. Some Remarks on the Use of Domestic Space." *Mededelingen van het Nederlands Instituut te Rome* 58: 143-148.

van der Meer, L.B. 2002. "Travetine Cornerstones At Ostia: Odd Blocks." *American Journal of Archaeology* 106: 575-580.

van der Meer, L.B., and N.L.C. Stevens. 2000. "Tiburtinus Lapis: The Use of Travertine At Ostia." *BABESCH* 75: 169-195.

van Dommelen, P. 2012. "Commentary: Roman Places in the Making." In *Making Roman Places, Past and Present*, edited by D. Totten, and K. Samuels. Portsmouth, RI: Journal of Roman Archaeology: 103-108.

Vischer, J.C. 2008. "Towards a User-Centred Theory of the Built Environment." *Building Research and Information* 36: 231-240.

Wainwright, J., and T. Barnes. 2009. "Nature, Economy, and the Space-Place Distinction." *Environment and Planning D: Society and Space* 27: 966-986.

Wallace-Hadrill, A. 1994. *Houses and Society in Pompeii and Herculaneum*. Princeton: Princeton University Press.

———. 2004. "Imaginary Feasts: Pictures of Success on the Bay of Naples." In *Ostia, Cicero, Gamala, Feasts, & the Economy: Papers in Memory of John H. D'Arms*, edited by A.G. Zevi, and J.H. Humphrey. Portsmouth, RI: Journal of Roman Archaeology: 109-126.

Wapner, S., and J. Demick. 2000. "Assumptions, Methods, and Research Problems of the Holistic, Developmental, Systems-Oriented Perspective." In *Theoretical Perspectives in Environment-Behavior Research*, edited by S. Wapner *et al.* New York: Kluwer Academic: 7-20.

Wapner, S. *et al.* 2000. *Theoretical Perspectives in Environment-Behavior Research*. New York: Kluwer Academic.

Waterton, E. 2013. "Landscape and Non-Representational Theories." In *The Routledge Companion to Landscape Studies*, edited by P. Howard *et al.* London: Routledge: 66-75.

Wattchow, B. 2013. "Landscape and a Sense of Place: A Creative Tension." In *Routledge Companion to Landscape Studies*, edited by P. Howard *et al.* London: Routledge: 87-96.

Watts, C.M. 1987. "A Pattern Language for Houses At Pompeii, Herculaneum and Ostia." Ph.D. Dissertation, University of Texas at Austin.

Webster, H. 2011. *Bourdieu for Architects*. Thinkers for Architects. London: Routledge.

Weiss, C.F. 2012. "Bodies in Motion: Civic Ritual and Place-Making in Roman Ephesus." In *Making Roman Places, Past and Present*, edited by D. Totten, and K. Samuels. Portsmouth, RI: Journal of Roman Archaeology: 51-63.

Werlen, B. 1993. *Society Action and Space: An Alternative Human Geography*. Translated by G. Walls. London: Routledge.

White, L.M. 2012. "The Changing Face of Mithraism at Ostia: Archaeology, Art, and the Urban Landscape." In *Contested Spaces: Houses and Temples in Roman Antiquity and the New Testament*, edited by D. Balch and A. Weissenrieder. Tübingen: Mohr Siebeck: 435–492.

Whyte, W.H. 1988. *City: Recovering the Center*. New York: Doubleday.

———. 2000. *The Essential William H. Whyte*. Edited by A. LaFarge. New York: Fordham University Press.

Wylie, J. 2013. "Landscape and Phenomenology." In *Routledge Companion to Landscape Studies*, edited by P. Howard *et al.* London: Routledge: 54-65.

Yegül, F. 2013. "Roman Imperial Baths and Thermae." In *A Companion to Roman Architecture*, edited by R. Ulrich, and C. Quenemoen. London: Blackwell: 299-323.

Zanker, P. 1988. *The Power of Images in the Age of Augustus*. Translated by A. Shapiro. Ann Arbor: University of Michigan Press.